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# Dependency factors in relation to recall of dependency material

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Dissertation

DEPENDENCY FACTORS IN RELATION TO RECALL  
OF DEPENDENCY MATERIAL

by

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## CHAPTER I

### INTRODUCTION

This study is an investigation of the relationship between the motivational state of dependency and the recall of dependency material. The thesis is conceived as an extension of work done by recent investigators<sup>1,2,3,4,5</sup> who have shown interest in need states of individuals and who were able to predict characteristics of cognitive behavior, thus establishing relationships between need-related stimuli and cognitive responses. The findings of these studies suggest that learning is facilitated if the motivational state of an individual is congruent with the cognitive task he is asked to perform. Learning will be inhibited if the need state interacts with inconsonant stimulus material.

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<sup>1</sup>J. S. Bruner, and L. Postman, "Emotional Selectivity in Perception and Reaction," J. Pers., 1947, 16, 69-77.

<sup>2</sup>L. F. Carter, and K. Schooler, "Value, Need and Other Factors in Perception," Psychol. Rev., 1949, 56, 200-207.

<sup>3</sup>K. B. Clark, "Some Factors Influencing the Remembering of Prose Material," Arch. Psychol., 1940, No. 253.

<sup>4</sup>J. M. Levine, and G. Murphy, "The Learning and Forgetting of Controversial Material," J. Abnorm. Soc. Psychol., 1943, 38, 507-517.

<sup>5</sup>D. McClelland, Studies in Motivation, Appleton-Century-Crofts, New York, 1955.

A sequence of investigations by Williams,<sup>6</sup> Wolf,<sup>7</sup> Maccoby,<sup>8</sup> and Gofstein<sup>9</sup> examined the drive state of hostility and helped to clarify the conditions under which inhibition or facilitation of cognitive processes occurs. In these studies it was assumed that hostile drives are primary and universal needs, capable of being elicited by corresponding drive stimuli. The implication was that the relationship between stimulus material and need is not confined to the interaction of hostile material and the drive state of hostility but has general validity in the broader area of motivation and learning. The psychological literature reports a few isolated studies of specific needs, such as McClelland and Lieberman's work<sup>10</sup> with achievement

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<sup>6</sup>M. Williams, "Rate of Learning as a Function of Ego-Alien Material," J. Personality, 1951, 19, 324-331.

<sup>7</sup>I. Wolf, "Learning Rate in Relation to Hostile Drive Strength and Stimuli Connoting Hostility," Unpublished doctoral dissertation, Boston Univer., 1954.

<sup>8</sup>E. E. Maccoby, H. Levin, and B. M. Selya, "The Effects of Emotional Arousal on Retention of Aggressive and Non-Aggressive Movie Content," Am. Psychol., 1955, 10, 359.

<sup>9</sup>A. Gofstein, "Hostile Drive, Conflict, and the Recall of Hostile Material," Unpublished doctoral dissertation, Boston Univer., 1956.

<sup>10</sup>D. C. McClelland, and A. M. Lieberman, "The Effect of Need for Achievement on Recognition of Need Related Words," J. Pers., 1949, 18, 236-251.

needs, Murray Cohen's<sup>11</sup> and Haskel Cohen's studies<sup>12</sup> of oral needs, and Erikson's<sup>13</sup> investigation of homosexual and succorant needs in paranoid schizophrenics and chronic alcoholics. However, the systematic investigation of specific need areas is only gradually becoming a field of interest to researchers.

The primary purpose of the present study is to determine whether or not similar expectations can be maintained regarding drive states other than hostility. An effort will be made to establish the relationship between the learning of dependency material and the conflict status of dependency needs.

The concept of dependency has drawn little attention from investigators, as evidenced by the relatively small

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<sup>11</sup>M. L. Cohen, "Cognition and Psychological Defense: The Relationship Between Defense and the Recall of Oral Material," Unpublished doctoral dissertation, Boston Univer., 1956.

<sup>12</sup>H. Cohen, "The Effect of Oral Need on Cognitive Responses of Children," Unpublished doctoral dissertation, Boston Univer., 1957.

<sup>13</sup>C. W. Erikson, "Perceptual Defense as a Function of Unacceptable Needs," J. Abnorm. Soc. Psychol., 1951, 46, 557-564.

number of experimental studies.<sup>14,15,16</sup> This seems surprising in view of the importance of the concept in the field of psychopathology. Clinical studies suggest the crucial role of dependency conflicts in the etiology of psychosomatic disorders,<sup>17</sup> of psychotic personality disturbances,<sup>18</sup> neurosis,<sup>19</sup> and character disorders.<sup>20</sup> However, the concept of dependency has not been subjected to extensive experimental investigations and has not as yet been related to the various facets of cognitive behavior.

For the purpose of this study dependency needs will be defined in terms of hypothetical events within the individual which can be inferred to be present on the basis of

<sup>14</sup>W. E. Fordyce, "Applications of a Scale of Dependency to Concepts of Self, Ideal-Self, Mother and Father," Unpublished doctoral dissertation, University of Washington, 1953.

<sup>15</sup>A. V. Lamphere, "The Relationship Between Dependency Factors and Goal-Setting Behavior in Duodenal Ulcer Patients," Unpublished doctoral dissertation, University of Washington, 1953.

<sup>16</sup>L. Navran, "A Rationally Derived Minnesota Multiphasic Personality Inventory Scale to Measure Dependency," Unpublished doctoral dissertation, Stanford University, 1951.

<sup>17</sup>L. J. Saul, Emotional Maturity, J. B. Lippincott and Co., Philadelphia, 1947.

<sup>18</sup>O. Fenichel, The Psychoanalytic Theory of Neurosis, Norton, New York, 1945.

<sup>19</sup>O. H. Mowrer, and C. Kluckhohn, "Dynamic Theory of Personality," in Hunt (ed.) Personality and the Behavior Disorders, Vol. I, Ronald Press, New York, 1944, pp. 69-135.

<sup>20</sup>D. Levy, Maternal Overprotection, Columbia Univ. Press, New York, 1943.

overt behavior patterns. In view of the studies cited regarding hostility and the recall of material connoting hostility, it can be assumed that individuals differ in the expression of dependency needs -- an assumption which leads to different expectations about the relation of these needs to cognitive functions. In this sense, the present study is a step in the direction of learning more about specific motivational states. The conflict status of dependency in different individuals will be examined through isolation of relevant variables and the formulation of differential predictions concerning the interaction of dependency needs with stimulus material connoting dependency.

## CHAPTER II

### HISTORICAL BACKGROUND

The present study relates to a broad research area which examines the influence of motivation on cognition. Pertinent studies have attempted to isolate and control such variables as affective influences, values, meaning or associations. This trend in research will be reviewed in its historical perspective.

Barlett<sup>1</sup> criticized the early experimental studies involving nonsense syllables by pointing out that even nonsense material will be assimilated according to the unique pattern of a person's associations which give the resulting experience structure and organization. Since then many investigations have been conducted concerning what Postman and Murphy<sup>2</sup> called the autistic factor in memory. This reflects a growing interest in the interaction of cognitive and motivational factors.

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<sup>1</sup>F. C. Barlett, Remembering, Cambridge, England, Cambridge University Press, 1932.

<sup>2</sup>L. Postman and G. Murphy, "The Factor Attitude in Associative Memory," J. Exp. Psychol., 1943, 33, 228-238.

### The Hedonistic Dichotomy

This trend can be directly related to the spreading influence of psychoanalytic theory, which made new assumptions regarding the phenomenon of forgetting. As soon as Freud advanced the concept of repression and formulated the principle that pleasant memories persevere while unpleasant ones are repressed or "censored" from consciousness, the notion was subjected to experimental investigations. By comparatively studying the forgetting of pleasant and unpleasant material, many workers set out to verify the repressive hypothesis. In 1930 Meltzer<sup>3</sup> reviewed these studies and arrived at the conclusion that all work done in the area of "the relationship of feelingtone to memory . . . reveals faulty technique and logic." He pointed to the deficiencies of the hedonistic dichotomy and felt that the experiments purporting to test this principle "offered no solution as to the validity of the hypothesis."

In 1938 Gilbert<sup>4</sup> made a comprehensive survey of further studies on hedonistic selectivity, finding their experimental designs considerably improved over those reported by Meltzer. As a result of better experimental controls,

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<sup>3</sup>H. Meltzer, "The Present Status of Experimental Studies on the Relationship of Feeling to Memory," Psychol. Rev., 1930, 37, 124-139.

<sup>4</sup>G. M. Gilbert, "The New Status of Experimental Studies on the Relationship of Feeling and Memory," Psychol. Bull., 1938, 35, 26-35.

Gilbert felt, more reliable conclusions could be drawn. Out of twenty studies reviewed thirteen confirmed and four denied the hypothesis of hedonistic selectivity in memory, while four studies were ambiguous in their findings. The majority of these studies, then, showed that pleasant material was more efficiently retained than unpleasant material, even though the difference was often very small.

It was characteristic of these studies that they singled out for investigation one "emotional factor" -- pleasantness -- as the most pertinent variable. No attention was paid as yet to the possibility of defining more specific motivational states that might be primary in influencing retention.

#### Attitudes and Frame of Reference

In 1943 Postman and Murphy<sup>5</sup> challenged this line of investigation by demanding that an effort be made to define the stimulus situation in more specific ways. They hoped to transcend the hedonistic dichotomy and suggested the study of attitudes in relation to learning. They devised an attitude schedule in an effort to examine the extent to which attitudes toward war-related learning material affected the retention of such material. This schedule -- testing attitudes toward the United Nations and the Axis powers -- was given to a group of eighth grade students.

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<sup>5</sup>Op. cit.

Word pairs from the extremes of the five-point attitude scale were selected for a learning task. They found that the associations of subjects having extreme attitudes were more speedily formed than those of subjects with less emphatic attitudes. They explain their findings by assuming that an extreme attitude represents to the subject a well-structured stimulus because of its positive valence in regard to the social and political frame of reference.

This study confirmed what the motivational approach to personality had long maintained -- that memory is a selective process. Prior to the publication of the Postman and Murphy study, few investigators had arrived at the same conclusions independently. Seeleman<sup>7</sup> measured the attitudes of college students toward Negroes, relating these to the ability to recognize Negro pictures previously shown to them. He found more correct recognitions among the pro-Negro group than among the anti-Negro group. Watson and Hartmann,<sup>8</sup> in 1939, examined the recall variation among students who had theistic and atheistic attitudes. They demonstrated that attitude-related material was recalled more efficiently than material incongruent with the subject's attitude.

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<sup>7</sup>V. Seeleman, "The Influence of Attitude upon Remembering of Pictorial Material," Arch. Psychol., 1940, 258, 69.

<sup>8</sup>W. Watson, and G. W. Hartmann, "The Rigidity of a Basic Attitudinal Frame," J. Abnorm. Soc. Psychol., 1939, 34, 319-335.

At the time Postman and Murphy conducted their prototypical study, Levine and Murphy<sup>9</sup> related the cognitive efficiency of students to their pro- and anti-Communist attitudes. Selective retention varied according to the student's pro- or anti-Communist frame of reference, i.e. attitude-related material facilitated the recall process.

In 1941, Edwards<sup>10</sup> was also dissatisfied with the dichotomous approach of the recall studies of pleasant and unpleasant material. He pointed to the fallacy of assuming that unpleasant material is ipso facto recalled less effectively. As Seeleman had a year earlier, he called attention to the presence or absence of conflict as a factor in the retention or forgetting of pleasant and unpleasant material.

Any experience which conflicts with the ego's desires will tend to be forgotten more readily than those which do not. An experience is excluded from consciousness not because it is unpleasant, but rather because it involves conflict. Conflict may be accompanied or followed by unpleasantness, but it is not the unpleasantness as such which is the determiner of forgetting; it is the conflict.<sup>11</sup>

Edwards tested his theoretical position in a study of subjects having favorable and unfavorable attitudes toward the

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<sup>9</sup>J. M. Levine and G. Murphy, "The Learning and Forgetting of Controversial Material," J. Abnorm. Soc. Psychol., 1943, 38.

<sup>10</sup>A. L. Edwards, "Political Frame of Reference as a Factor Influencing Recognition," J. Abnorm. Soc. Psychol., 1941, 36, 34-50.

<sup>11</sup>Ibid., 34.

New Deal. A speaker and his remarks were regarded favorably by students positively inclined toward the New Deal, whereas unfavorable impressions were gained by students with unfavorable attitudes. However, Edwards expressed caution in discussing his results. Though there was significant forgetting of both conflicted and nonconflicted material, the tendency for conflicted material to be recalled less efficiently was statistically unreliable.

In spite of the lack of statistical validation, Edwards corroborated the previous studies by noting a recall tendency that did not exist in a control group of neutral students. His main contribution, however, can be seen in his clarification of a theoretical issue. He brought into focus the concept of conflict. There were indications not only that desires, sets, values, attitudes, and frames of reference are crucial variables affecting the cognitive performance of an individual, but also that interaction between motivational forces and memory functions shows facilitating and inhibiting trends according to the presence and absence of conflict.

#### Related Studies

As experimental studies accumulated evidence in support of the hypothesis that material is differentially retained in response to motivational factors, it became necessary to evaluate the effects of specific motivational conditions. Most of the early studies had focussed on the manipulation

of the stimulus variable while paying only passing attention to the motivational status of the subject. With increased recognition of the selective, i.e. preferential or suppressing, effects of need states upon retention, researchers began to investigate specific conditions of needs and conflict. McClelland<sup>12</sup> has done much to stimulate this line of research.

McClelland and Lieberman<sup>13</sup> studied achievement needs and endeavored to determine the relationship between a measure of these needs and the efficiency of recognition of need-related words. They found that a high achievement need facilitated recognition of achievement-related words, whereas subjects with low achievement needs failed to recognize such words with equal facility.

Maccoby, Levin, and Selya<sup>14</sup> conducted a carefully controlled investigation of aggressive impulses. They tested the hypothesis that children who are aroused to anger by frustrating experiences tend to recall more of the aggressive content of a film presentation than children in a more

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<sup>12</sup>D. C. McClelland, Studies in Motivation, Appleton-Century-Crofts, New York, 1955.

<sup>13</sup>D. C. McClelland, and A. M. Lieberman, "The Effect of Need for Achievement on Recognition of Need Related Words," J. Pers., 1949, 18, 236-251.

<sup>14</sup>E. E. Maccoby, H. Levin, and B. M. Selya, "The Effects of Emotional Arousal on Retention of Aggressive and Non-Aggressive Movie Content," Am. Psychol., 1955, 10, 359.

neutral emotional condition. They grouped 127 children of the fifth and sixth grades into two sections matched for sex and intelligence. Then both groups were involved in a spelling bee. One team was consistently given difficult words, which fell approximately on the ninth grade level, while the other team was given relatively easy words, which generally fell below their current class level. Following this contest, in which the first team became increasingly more frustrated, all subjects were shown movies with highly aggressive content, Dead End Kids and Junior G Men. When a measure of recall was taken, the frustrated group revealed a significantly higher recall score than the non-frustrated group.

Aggression and hostility as a specific need state received further attention from other investigators. Williams<sup>15</sup> exposed subjects to two lists of paired associates, one of which contained words with markedly hostile and violent connotations. The words on the other list pertained to food. In relating the learning rate to stimuli with hostile content, he essentially supported his hypotheses that need-alien material was not learned at the same speed as neutral material.

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<sup>15</sup>M. Williams, "Rate of Learning as a Function of Ego-Alien Material," J. Personality, 1951, 19, 324-331.

Wolf<sup>16</sup> pursued this finding of a negative relation of learning rate to hostile stimuli by assuming that inhibition of learning results from the interaction of a hostile drive state and material having hostile stimulus value. Grouping his subjects on the basis of the Elizur method of Rorschach analysis, Wolf employed a serial anticipation method. He devised three twelve-word lists: one for practice, one consisting of hostile words, and one consisting of nonhostile words. In doing so he controlled the variables of meaningfulness, association value, familiarity, and vividness by choosing the words from Haagen's list of common adjectives. Wolf's positive findings very much strengthened the hypothesis that any interaction of hostile drives with hostile learning material contributes to a depressed learning rate.

The apparent contradiction between Maccoby, Levin, and Selya's findings of facilitated learning and Wolf's study of inhibited cognitive performance was examined by Gofstein,<sup>17</sup> who, in his review of Wolf's work, suggested the importance of the vividness of hostile material as a facilitating factor, since vivid material is retained more readily. Gofstein controlled the conflict status as a relevant vari-

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<sup>16</sup>I. Wolf, "Learning Rate in Relation to Hostile Drive Strength and Stimuli Connoting Hostility," Unpublished doctoral dissertation, Boston Univer., 1954.

<sup>17</sup>A. Gofstein, "Hostile Drive, Conflict, and the Recall of Hostile Material," Unpublished doctoral dissertation, Boston Univer., 1956.

able. He investigated the relationships and hypothesized that vivid hostile stimulus material will inhibit a cognitive response if the hostile need state with which the stimulus interacts is a conflicted one. Consequently, a facilitation of learning can be expected if the vivid hostile stimulus material interacts with a nonconflicted need state. Gofstein chose two pathological groups for his study, one consisting of brain-damaged subjects known to express aggression and hostility without significant conflict, the other consisting of catatonic schizophrenic subjects chronically conflicted over their hostile drive state. Two one-paragraph stories were read to each subject. One story was loaded with hostile words while the other was neutral in content. Gofstein was able to support his hypotheses, thus demonstrating the importance of conflict in the facilitation or inhibition of learning.

In discussing the implications of his findings, Gofstein makes the following statement:

The results of this study appear to be consistent with the findings of numerous other studies which have suggested an interdependence between cognitive functioning and various conditions of need states, psychological defenses, and conflict. The inhibiting effects of conflictual needs on the learning and retention of need-related stimuli have been demonstrated in the present study.<sup>18</sup>

The phrasing of this conclusion suggests that the examination of the specific need state of hostility warrants a general-

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<sup>18</sup>Ibid., 73.

ization regarding the interaction of any motivational force and cognitive performance. Such confidence might have been well founded if more knowledge of other specific need states had been accumulated. Gofstein himself pointed to the necessity of studying the "relative potency of different need states,"<sup>19</sup> and he deplored the vagueness which still prevails in our knowledge of motivational forces.

The present thesis, then, is concerned with the relationship between cognitive functioning and a need state other than hostility. It will attempt to show the relationship, if any, of dependency needs to the recall of dependency material by making assumptions that are derived from the review of the relevant literature.

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<sup>19</sup>Ibid., 74.

## CHAPTER III

### THEORETICAL CONSIDERATIONS

#### Assumptions

As the survey of the relevant literature suggests, academic and experimental psychologists, in contrast to dynamically oriented psychologists, have only recently begun to pay more than passing attention to the clinical viewpoint that human behavior is motivated by complex drive states. Although there has been a general recognition of the probable significance of the motivational state of dependency, this personality variable has not been thoroughly examined, just as the objective and scientific parameters of other needs states are yet to be determined. However, the increased awareness of the significant role of psychological motives in behavioral modification, i.e. learning, has contributed to the generally accepted tenet that motivation is an essential condition of learning. By the inclusion of psychological motives in learning research, Melton<sup>1</sup> says, "...it is admitted...that wants, interests, and attitudes have an important place among those modifications of

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<sup>1</sup>A. W. Melton, "Motivation and Learning" in W. S. Monroe, (ed.), Encyclopedia of Educational Research, Macmillan, New York, 1952.

behavior which are the product of learning." Moreover, the results of a number of different experiments have indicated the specificity of need states in relationship to particular learning processes. From these investigations is derived one of several assumptions basic to the formulation of hypotheses in the present experimental study.

Assumption 1: Motivational states under certain conditions significantly influence cognitive processes.

A further theoretical position is derived from the studies reviewed. The relationship between motivational states -- needs, frames of reference, attitudes, values -- and harmonious (ego-syntonic) cognitive tasks differs from the relationship between such states and neutral tasks. Facilitating results were obtained and measured in terms of objective indices such as better recall, less trials, and lowered perceptual threshold. On the other hand, inhibiting performances were observed when the motivational condition interacted with an incongruent (ego-alien) cognitive task. These experimental findings allow the formulation of a further assumption.

Assumption 2: The interaction of need and need-relevant stimulus material may effect a facilitation or inhibition of performance in a learning task.

The studies reviewed concerned themselves with specific aspects of the interaction process. The work with perceptual sensitivity, perceptual judgment and hostile drive states suggests that the presence or absence of conflict is of crucial significance in the need-stimulus relationship. Facilitation of cognitive performances can be expected to occur in cases where conflict is absent, whereas the presence of conflict and of conflictual values or needs contributes to inhibition. On the basis of these findings, a further assumption is derived.

Assumption 3: The nature of the interaction process, i.e. lowered or enhanced efficiency of learning, is related to the conflict status of the respective need.

Before these assumptions, based on the exposition of relationships established through experimental work, can lead to the formulation of hypotheses to be tested, further consideration must be given to the concept "need" in general and the concept "dependency" in particular.

#### Need and Need Expression

McClelland<sup>2</sup> believes that the study of motivation still is in its infancy and that the effects of motivation on

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<sup>2</sup>D. McClelland, Studies in Motivation, Appleton-Century-Crofts, New York, 1955.

behavior, the measurement of motivation with regard to performance, and the relationship of cognitive processes and conflict, are poorly understood and in need of further investigation. Similarly Miller<sup>3</sup> expresses the view that systematic experimental investigation of drive states has scarcely begun. The lack of experimental data poses a problem for the development of need theories. Though new theories<sup>4</sup> are advanced, the most efficient and appropriate way of conceptualizing motivational forces is still debatable. Brown<sup>5</sup> states:

...it is not safe to assert that students of behavior have reached appreciable agreement as to how drives can be most meaningfully defined, what mechanisms are involved in each case, how many drives there are, or precisely how drives function as behavior determinants....Almost no two writers agree on answers to the question of whether habits can become drives, whether incentives arouse drives, whether learned drives can become functionally autonomous, or which learning paradigms can be most meaningfully applied to motives.

This conceptual uncertainty exists with regard to dependency needs. Can the physiological basis for this specific motivational state be established by demonstrating that an individual deprived of food will crave not only fats, proteins, and carbohydrates, but also love, affection,

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<sup>3</sup>N. E. Miller, "Fear as Motivation and Fear-Reduction as Reinforcement in the Learning of New Responses," J. Exp. Psychol., 1948, 38.

<sup>4</sup>A. H. Maslow, Motivation and Personality, Harper & Brothers, New York, 1954.

<sup>5</sup>J. S. Brown, "Problems Presented by the Concept of Acquired Drives" in Current Theory and Research in Motivation, A Symposium, University of Nebraska Press, Lincoln, 1953.

dependence, and comfort? In order not to accept an inference as fact, the following position is taken in conducting the present investigation: Psychological needs have a biological basis in that they are needs of a biological organism, and physiological needs have social-psychological relevance in that need gratification entails interaction of the organism with his social environment.

### The Concept of Dependency

Dependency is regarded as a basic need universally found in human beings and having universally an important role in the maturation and socialization of the individual. It is proposed that dependency needs are a significant motivational component in human behavior revealed in overt attempts to gain support and protection. Though biological predetermination is assumed, they are learned tendencies to be insecure, deprived, and anxious in the absence of support and protection. Any stimulus situation signifying a lack of love, aid, affection, guidance, sympathy, or nurture can be said to build up a potential -- or better, can acquire a potential through learning -- for, arousing a motivational state of dependency. The learned tendency will then function in mobilizing behavior patterns directed at obtaining these goals.

Reactions to motivational states vary. While certain behavior patterns indicate adequate resolutions of dependency needs with the achievement of relatively

nonconflicted adaptation to reality situations, other patterns demonstrate the detrimental effects of poorly resolved dependency needs.

In any situation in which the individual has to assume responsibility or has to make decisions dependency needs are aroused. Changes in stimulus intensity provide the basis for changes in the motivational pattern and determine the behavioral mode of adaptation. It is this fluctuation in the level of adaptation which reflects the degree of mastery over dependency needs.

From a developmental and maturational point of view the early phase in human growth necessitates dependent relationships. A child is not equipped to take care of his own basic needs for nourishment and protection. Loss of support and acceptance leads to a total reaction in the form of panic, fear, and a struggle to regain security. Freud<sup>6</sup> recognized in such reactions a most fundamental striving of the organism for self-preservation. Other writers<sup>7,8</sup> link such a strong response to the safety needs of the individual. Infancy and childhood are periods of transition in which physiological autonomy is gradually surrendered,

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<sup>6</sup>S. Freud, "Instincts and Their Vicissitudes" in Collected Papers, Vol. IV, p. 67, Hogarth Press, London, 1950.

<sup>7</sup>E. Fromm, Escape from Freedom, Rinehart, New York, 1941.

<sup>8</sup>K. Horney, New Ways in Psychoanalysis, Norton, New York, 1939.

to some degree, to cultural controls. With increased physical maturation the early lack of biological readiness to function independently becomes less important, and the parent-child interdependence takes on a social and psychological meaning. It is through this intimate relationship of the child to his parents that he acquires the tools and skills for independent social living during adulthood.

The emergence of adult behavior patterns is strongly influenced by cultural factors. In our society a high premium is put on independent behavior. In many blatant and subtle ways society reinforces certain acts regarded as socially desirable. Thus, the attributes of perfected independence are given to the prototype of the adult male: unrestrained self-reliance, aggressive rejection of external control of thought and action, and ambitious realization of individualistically conceived plans. At the same time, while independence is rewarded, behavior connoting dependency is either disapproved or ignored. The retention of dependent behavior becomes, therefore, incongruous with the status of the adult. The growing individual is under constant pressure to abandon gradually all signs of dependency, which are identified with childhood trends and immaturity. However, there is not as much individual freedom in sharing group life as the individual is made to believe through the constant endorsement of independence. To live in a group with a definite social structure requires

conformity and cooperation which cannot be avoided without serious consequences. There is a need for people to behave in ways that facilitate the functions of the group, and it is this cooperative organization which makes people mutually interdependent. Wherever individuals are in contact for any length of time, dependency becomes part of human existence. Adulthood can, therefore, be viewed best as a state of human development in which dependency patterns of early childhood are partly outgrown and partly integrated into adult personality. Levine<sup>9</sup> expressed this concept in saying that "mature adults can have strong dependency wishes and legitimate dependency satisfaction without considering themselves weak and without hurt pride."

#### Meaning of "Conflict"

Human behavior varies greatly in terms of dependence and independence. Nonconflicted adjustment is conceived to be a state of active mastery over childhood wishes without expression of overindependence. In reality various solutions, more or less satisfactory, can be achieved in coping with the desire for help, support and belonging that is so dominant during infancy. Psychoanalytic theory<sup>10</sup> assumes

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<sup>9</sup>M. Levine, "Principles of Psychiatric Treatment" in Alexander and Ross, (ed.) Dynamic Psychiatry, University of Chicago Press, Chicago, 1952, p. 318.

<sup>10</sup>W. Healy, A. F. Bronner, and A. M. Bowers, The Structure and Meaning of Psychoanalysis, Alfred Knopf, New York, 1930.

that a great many adult personality characteristics depend upon the manner in which an individual gradually emerges from dependence upon parental care and authority. Failure in such a development may result in a relatively disturbed adult personality. Certain patterns regarding conflict over dependency can best be observed in three specific behavioral areas: parent-child interaction, relationship to authority, and activity orientation.

Since dependency ultimately exists in relation to parents the foremost area in which conflicts over dependency are revealed is in a person's attitude toward his parents. At a time when adult independence and social maturity are expected of an individual, the degree of closeness to parents, or to adult figures of parental significance, becomes an indication of the intensity of need and of need conflict. Parents provide nurturance, protection, and gratification of the child's emotional needs so that in the experience of the child dependency is equated with obtaining support, love, and security. When later in life certain events become demanding, some people feel challenged and meet these difficulties by relying on their own emotional and material resources while others are impelled to take refuge in the protection providing atmosphere of the home.

There is a difference between the security aspects of the parent-child relationship and the authority position of the parent, who also has many directive functions.

Disciplinary measures and unnecessary constraint pose serious limitations upon the resolution of infantile dependency. Prolonged authoritative attitudes on the part of parents can be expected to interfere with the child's becoming mature and independent. As an adult such a child may have serious difficulties relating to anyone in authority, and an observation of a person's interaction with authority figures will offer clues as to the degree of conflict experienced over dependency.

It is further considered that individuals conflicted over dependency will reveal characteristic passive-submissive or reactive-independent behavior in any situation that requires decision-making, acceptance of responsibility, or a definite course of action. Making a decision involves the settlement of a point in question and coming to a conclusion as to what shall be done or how something should be done. Motivational factors will determine the direction in which a given decision is made.

These behavioral fluctuations have been observed in clinical studies of patients with psychosomatic symptoms. Alexander<sup>11</sup> noted that dependency conflicts expressed themselves in two quite different ways. Of peptic-ulcer patients he said:

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<sup>11</sup>F. Alexander, Psychosomatic Medicine, Norton, New York, 1950, pp. 102-103.

It was observed that their wish to remain in the dependent infantile situation -- to be loved and cared for -- was in conflict with the adult's ego, pride and aspiration for independence, accomplishment, and self-sufficiency. These conflicting tendencies reinforce each other in a characteristic way. In overt behavior many peptic-ulcer patients show an exaggerated aggressive, ambitious, and independent attitude. They do not like to accept help and burden themselves with all kinds of responsibilities....This is a reaction to their extreme but unconscious dependence. The continuous struggle and excessive responsibilities reinforce the wish for a dependent relationship... [but]...not all patients suffering from peptic-ulcer overcompensate for their dependent desires with an outward show of go-getting activity and acceptance of leadership and responsibilities. Many of them are overly dependent, demanding and disgruntled. In such persons the dependent tendencies are frustrated not by internal repudiation but by external circumstances.

Stimulated by Alexander's work some investigators<sup>12,13</sup> set out to furnish objective information about these clinical observations and were able to confirm them. Other studies<sup>14,15</sup> established the fact that these extreme personality tendencies are not confined to psychosomatic disorders

<sup>12</sup>A. V. Lamphere, "The Relationship Between Dependency Factors and Goal-Setting Behavior in Duodenal Ulcer Patients," Unpublished doctoral dissertation, University of Washington, 1953.

<sup>13</sup>A. S. Friedman, "A Comparative Study of Personality Characteristics and Social Value Systems of Bronchial Asthma and Peptic-Ulcer Patients," Unpublished Doctoral Dissertation, University of Southern California, 1949.

<sup>14</sup>W. E. Fordyce, "Applications of a Scale of Dependency to Concepts of Self, Ideal-Self, Mother and Father," Unpublished doctoral dissertation, University of Washington, 1953.

<sup>15</sup>L. Navran, "A Rationally Derived Minnesota Multiphasic Personality Inventory Scale to Measure Dependency," Unpublished doctoral dissertation, Stanford University, 1951.

but can be found in non-patients as well. It can therefore be assumed that the overt behavior of any person conflicted with over dependency will show a consistent trend in one direction or the other along the dependence-independence continuum.

At one extreme are the passive-submissive individuals whose behavior takes highly dependent forms. In the present study they will be called Dependency-Accepters. At the other extreme are reactive-independent individuals who respond strongly to their dependency desire by means of excessive demonstrations of independent behavior. They will be called Dependency-Deniers. Both groups are held to be alike in that they are typically conflicted over infantile dependency needs, but they differ in the way they express their conflict. What characterizes both groups is the inflexibility in their mode of adjustment -- they strongly favor one kind of solution. If an individual persistently displays passive-submissive or reactive-independent behavior, he essentially lacks the ability of the "normal person" to choose a dependent or independent position according to the demands of a given situation. He endeavors to gain mastery over his conflicts by constantly accepting or denying his dependency needs. This trend reveals itself in all matters in which dependency factors play an important role.

In a third group of individuals the conflict takes a

form that does not allow them to choose between extreme positions. Their ambivalence is such that a move in either direction elicits strong anxieties. This group will be called Vacillators.

A brief characterization of each of the three groups will help to define more specifically the meaning of these concepts, which will be used throughout the present study.

#### Dependency-Acceptors

The Dependency-Acceptor has a passive-submissive orientation. Any situation demanding self-assertion or initiative mobilizes fears of failure. The withdrawal to a dependent position allows him to avoid the anxiety aroused in connection with decision-making. His behavior is characterized by reliance on an external agent as a regulating force in his life, by yielding of responsibility to more aggressive people, and by subordination of his opinions to those of others. His social adjustment shows an unusually close attachment to family and friends. When he finds himself confronted with the need for independent action, he falls back on advice and help from others. Anxiety is reduced by adhering closely to generally established conventions, by avoiding social isolation, and by seeking the protection of parental figures. The passive-submissive tendency of the Dependency-Acceptor is expressed in his desire for physical closeness to parents whenever life situations cannot be tolerated. Unconsciously he would like to

be a child again, taken care of by mother and freed of the burden of leading an independent existence. Mastery over his inner conflicts is gained by assuming a submissive attitude according to the principle, "If I am obedient, I always will be safe." He finds his gratifications through letting the person in authority do what he himself would like to do or fear to do, thus realizing his latent desire to be independent through identification with authority and acceptance of external authority. Fromm<sup>16</sup> says of these persons:

[Their]...whole life is in a subtle way related to some power outside themselves. There is nothing they do, feel, or think which is not somewhat related to this power. They expect protection from "him," make "him" also responsible for whatever may be the outcome of their action. Often the fact of his dependence is something the person is not aware of at all. Even if there is a dim awareness of some dependency, the person or power on whom he is dependent often remains nebulous.

#### Dependency-Deniers

The Dependency-Denier is a person who tends to assume leadership in any unstructured situation. Particularly when cooperation with others is essential, he is noted for taking an overly independent position. While seizing initiative at every occasion and giving the impression of a self-assured and autonomous person, he himself cannot accept authority well and finds himself in conflict with social customs and

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<sup>16</sup>E. Fromm, Escape from Freedom, Rinehart, New York, 1941.

norms of conduct. When confronted with obstacles, he has difficulty in making use of help or seeking advice and assistance. Anxiety is aroused whenever he experiences a need for reliance on others. He then drifts into independent, rebellious, individualistic behavior. Dependent situations are feared because of a latent wish to be dependent. Gratifications are found in omnipotent fantasies and in boisterous overspontaneous, ill-considered patterns of adjustment. He cannot admit to himself the strength of his dependency wishes. Being aware of the culturally determined pattern not to seek but rather to give support and protection, he feels compelled to act in overly independent and commanding ways. He consciously denies any strong ties to or special sentiments for his parents. Physical closeness he believes to be a sign of infantile weakness; it has to be rejected. In his relationship to his parents he can be expected to assert unreasonable independence even in times when cooperation and mutual assistance is beneficial. Their need for dependence is overshadowed by the simultaneous striving to reject and retaliate. Anyone in the position of a protector or provider cannot be tolerated because he symbolizes the parent who failed to gratify these needs on an infantile level. Protest against authority in later life reflects unconscious hostility toward the depriving and disapproving parents. The reactive-independent behavior of the Dependency-Denier can be observed in his

refusal to subordinate himself when he is in a subordinated position and in a generally derisive attitude about authority.

#### Vacillators

The Vacillator is a chronically ambivalent person. He appears hesitant and indecisive, finding himself unable to make clear choices or to maintain definite views. Whenever he finds himself in a new situation, his judgment, attitudes, and thinking are easily influenced by others. He changes his mind readily and feels safe if he does not act one way or the other. Problems are solved by making a half-hearted effort without any deep conviction that certain solutions are more adequate than others.

#### Meaning of "Nonconflicted"

The term "nonconflicted" is here limited to signify the absence of any discernible maladjusted behavior related to conflicts over dependence or independence. While such a person may show signs of disturbance in other conflict areas, such as hostility, he is not essentially conflicted over dependence. Overtly he is considered a friendly person in his relationships to others, being neither clinging nor possessive nor aloof. He can form his own opinions, but when the situation calls for it, he can accept the advice and views of other people. In general, he is someone who can handle his own affairs, displaying a good balance between

initiative and acceptance of leadership. According to the given reality situation, he may show a dependent or independent behavior pattern without consistently favoring any one direction.

#### General Hypothesis of the Study

From a review of the literature of related studies, certain assumptions were derived regarding selective cognitive processes. Selection was said to be attributable to the differential effect of motivational forces within the individual -- trends which direct, organize, and influence what will be retained in a learning task. These assumptions and the foregoing considerations of concepts basic to this study led to the development of the following general hypothesis:

**General Hypothesis:** Response variation in the performance of a cognitive task can be systematically related to the conflict status of a specific need of an individual. Need-related stimulus material interacting with nonconflicted motivational states has a facilitating effect, while the same stimulus material interacting with a conflicted motivational state will show inhibiting effects.

### Specific Hypotheses

Clinical studies by Alexander and the experimental work of Lamphere, Friedman, and Navran suggest that there are three basic types of reaction patterns in individuals conflicted over dependency. In view of the existence of these distinguishable motivational states, certain expectations can be maintained. According to the assumptions, a group of dependency-conflicted people can be expected to respond differentially to stimulus material of neutral and dependency-charged content. On the other hand, a group of subjects not conflicted with respect to dependency can be expected to show no response variation in the recall of neutral and dependency-charged stimulus material.

Assuming that the general hypothesis holds true and assuming further that the conflict status of individuals can be controlled experimentally, the following specific hypotheses are formulated on the basis of the relationships which appear to exist between dependency needs, conflict over dependency, dependency-laden stimuli, and cognitive efficiency:

Hypothesis 1: Recall efficiency of conflicted subjects will be detrimentally affected in the recall of stimulus material with dependency-charged content.

Hypothesis 2: Recall efficiency of nonconflicted subjects will not be affected in the recall of dependency-charged content.

Hypothesis 3: In the recall of neutral stimulus material the recall efficiency of conflicted subjects will not differ from that of nonconflicted subjects.

## CHAPTER IV

### MEASUREMENT OF DEPENDENCY FACTORS

#### Choice of Instrument

Dependency has been defined in terms of hypothetical events within the individual that can be inferred to be present on the basis of overt behavior patterns. Since these events vary in intensity and magnitude, it is reasonable to assume that they can be measured.

To assess the need state of dependency the story-completion technique was employed, because it is a flexible method readily adaptable to projective controls and to many types of content. Precise controls can be incorporated in story details so that stimulus characteristics can be varied systematically. By setting the story scenes in such a way as to preclude certain plot choices, the story-completion test can be made a highly effective tool. Further advantages lie in the relative ease with which responses can be quantified and in the adaptability of the test to a multiple-choice design through which controls are further increased.

The multiple-choice story-completion test devised for this experimental study is called the Predicament Story Test. A full description of the test, its rationale and construction, with information regarding its reliability and

validity, is given in Appendix A.

### The Predicament Story Test

#### Description

In its final form the Predicament Story Test, referred to as PST, consists of eighteen stimulus stories. Each story concerns a person who finds himself in a predicament situation. The subject is offered a choice from among five courses of action leading to a solution of the predicament. Each possible choice reflects a different degree of dependent or independent behavior. The outcomes proposed range from extreme independent solutions to moderately independent, ambivalent, moderately dependent, and extreme dependent solutions. In making his choice, a subject reveals his unconscious motivations and conflicts.

The predicament situations in the stories were not chosen at random, but were based on the definition of dependency and selected for their relevancy to one of the three behavioral areas in which conflicts over dependency can best be observed: parent-child interaction, relation to authority, and activity orientation. The eighteen stories fall into three groups, each of which contains six stories relating to one of the three behavioral areas.

The design of the PST is shown by the following sample story, chosen from the area of parent-child interaction:

Story #3 Bill lives with his family. He heard about a job out of town and is curious what it is like. On the other hand, he likes the idea of staying with his folks and working right in town.

Question: What is Bill going to do?

Choice #1: Bill is the enterprising type who goes out at once, takes the job, and moves out of the home.

Choice #2: He will go out and take a look at the job. Bill will take it if he thinks he is making a good deal.

Choice #3: Bill can actually do one of several things. If he wants a job he will look for one, but if he does not he will stay where he is.

Choice #4: Since he is satisfied with his present set up, he will consider a change only if a good opportunity offers itself to him.

Choice #5: Since Bill likes the idea of working in town, he probably will not bother looking for a new job.

Choice #1 exemplifies the extreme independent position. The hero of the story, Bill, is said to solve his predicament through an active, direct approach without considering alternative solutions. By implication Bill is described as an enterprising, self-reliant and resourceful person who is anxious to cut his ties with his family and have a job away from home.

Choice #2 illustrates a moderately independent attitude toward a resolution of his predicament. An element of independence appears in Bill's decision to go out and investigate the job, i.e. a move away from the family is within the realm of possibility. However, some dependent thinking is expressed in the stipulation to move only if the job offer is most satisfactory.

Choice #3 indicates a position of ambivalence and vacillation. Bill considers several alternatives, but he remains indecisive since the alternatives appear equally attractive.

Choice #4 is similar to choice #2 in that the solution reflects moderation rather than an extreme, yet the emphasis falls on dependency more than on independence. This choice, therefore, illustrates a moderately dependent outlook. The major interest is in staying with parents and moving away from them only if an exceptionally good opportunity is available. Apparently dependency wishes are stronger than the desire for an independent existence away from home.

Choice #5 indicates a solution to the predicament through a clear choice of extreme dependent action. Bill is said to like the idea of working in town, which by implication means he has no intention of moving away from his parents. This choice contains no clues expressive of wishes in the direction of independence.

### Scoring Methods

The choice of solution to a predicament story indicates the degree to which the hero in the story is judged to experience a preference in solving the predicament situation. The intensity of dependency reactions were scored on a five-point scale according to the subject's projection of his own preferences for independent or dependent action. The weights on this five-point scale were +2 +1 0 -1 -2. The

plus direction was chosen for independent behavior and the minus direction for dependent action, and the weights were assigned to each choice as follows:

Extreme Independence	+2
Moderate Independence	+1
Vacillation	0
Moderate Dependence	-1
Extreme Dependence	-2

The assignment of weights to all choices in the PST is given in Appendix A in connection with the detailed description of the test.

#### Rationale

The PST is a projective test in the sense that the response process involves the transformation of ambiguous stimulus situations into forms and values and judgments which a subject perceives selectively in the multiple-choice answers to each story. As a result of his individualized reaction to the stimulus situation, a subject reveals his own motivational forces and their conflict status. The PST is a controlled technique in that it is designed to evaluate one particular aspect of total personality, namely dependency needs.

## CHAPTER V

### THE RELEVANT VARIABLES

#### The Independent Variable

In the study of the relationship between the motivational state of dependency and the recall of dependency-related material, the conflict status of dependency was the independent variable. Two major conditions of need state, conflicted and nonconflicted, were determined. Two corresponding groups were selected on the basis of their scoring patterns on the Predicament Story Test, specifically designed and developed to identify the conflict status of dependency. According to the pattern of item choices on this test, a subject was assigned to either the nonconflicted or the conflicted group.

The sample and the characteristics of the population included in the present investigation are discussed in connection with a review of procedures. In brief, eighty subjects were used in the final study. From these, seventy-two useful records were obtained, of which forty-three met the criteria for the nonconflicted group and twenty-nine met those for the conflicted group.

In the following section the groups will be defined, and the criteria for each group will be elaborated.

Table I. Distribution of subjects between major categories. N=72

Conflicted		Nonconflicted
Accepters	11	43
Deniers	12	
Vacillators	6	
Total N = 29		Total N = 43

Appendix A describes the various steps taken in the development of the PST and in the derivation of definitions of both the conflicted and the nonconflicted groups on the basis of findings of a pilot study in which fifty male college freshmen participated.

#### Nonconflicted Group

The operational definition of the nonconflicted group was derived from the theoretical assumptions about dependency and from the empirical findings of the pilot study. According to these assumptions a nonconflicted individual is able to make either dependent and independent choices when confronted with predicament situations, without consistently favoring any one direction along the dependence- independence continuum and without consistently avoiding any commitment by maintaining a neutral position. In terms of test performance a nonconflicted person can be expected to score heavily the +1 and the -1 choices while the extreme positions of +2 and -2 are only occasionally selected. Similarly, the 0 choices are not favored over the +1 and -1 choices.

In the pilot study these expectations were met by twenty-five subjects. The mean score data distributed as follows:

## Nonconflicted (Pilot Data)

Score	+2	+1	0	-1	-2
Observed frequency	1.62	5.98	5.24	5.62	1.48

As can be seen in Figure 1, these values form a scoring pattern which graphically suggests an M shape. The scoring pattern of nonconflicted individuals actually reflected the preference of +1 and -1 choices in this group. It is this empirically observed pattern of item choices on the PST which served as a basis for defining operationally the conditions under which any subject is regarded as nonconflicted. From these findings the expected frequencies of scores were determined by evening the M shaped curve to yield the following values, represented in Figure 2:

## Nonconflicted (expected frequencies)

Score	+2	+1	-1	-2	-2
Expected Frequencies	1.00	6.00	4.00	6.00	1.00

Definition of Nonconflicted: A subject is nonconflicted if his performance on the Pre-dicament Story Test yields a scoring pattern that does not differ from the pattern of expected frequencies of scores for nonconflicted subjects.

Forty-three subjects met these criteria and were therefore included in the nonconflicted group. The following mean frequencies of scores are also shown graphically in

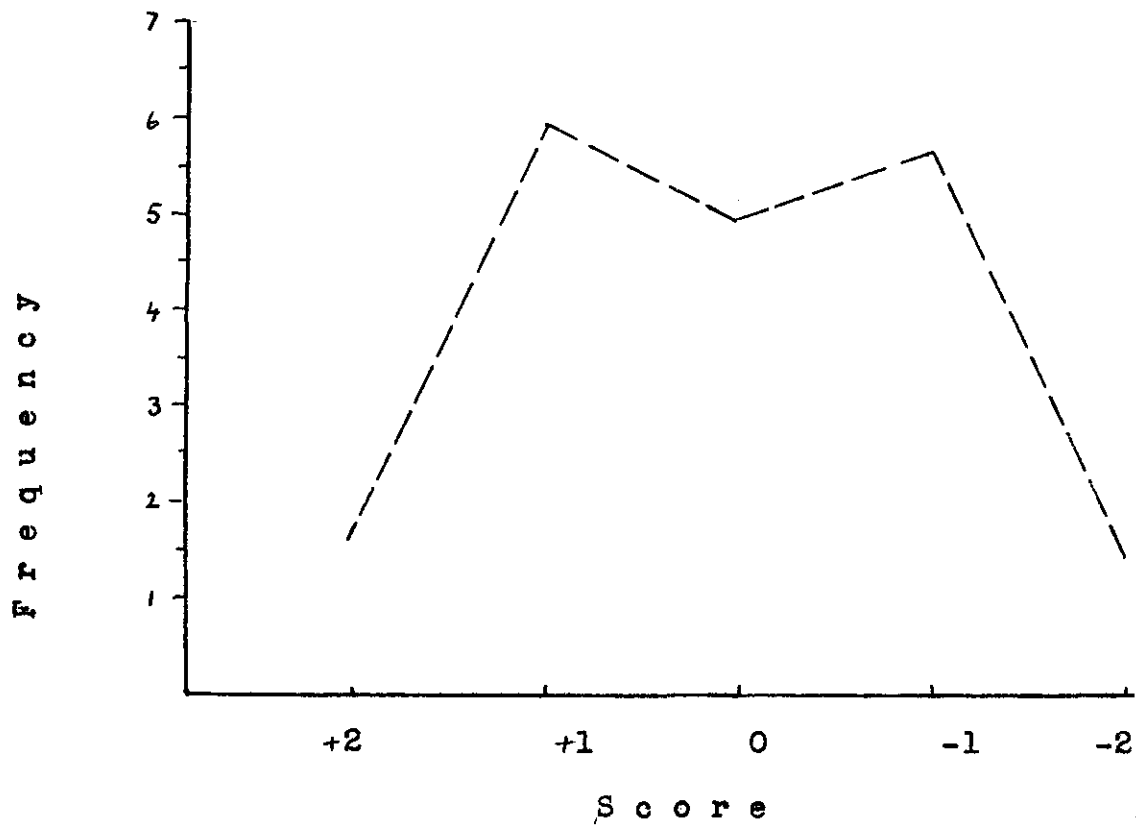


Fig. 1. Means of frequency of occurrence of PST scores of nonconflicted subjects in pilot study. N = 25

Figure 2:

## Nonconflicted (Experimental Data, N=43)

Score	+2	+1	0	-1	-2
Expected Frequencies	1.00	6.00	4.00	6.00	1.00
Mean Observed Frequencies	1.48	6.12	4.34	5.71	1.13

## Conflicted Group

The criteria for the conflicted group were determined by the theoretical position that in his PST choices a conflicted subject reveals a tendency to select consistently extreme solutions to predicament situations according to the projection of his own preferences, attitudes, and motivational state. A conflicted individual, for instance, can be expected to favor choices with weights of either +2 and +1 while relatively ignoring answers in the test with weights of -1 and -2. Similarly, another conflicted subject may heavily score -2 and -1 while making relatively few +2 and +1 choices. The design of the PST actually allows dependency conflicts to be expressed in three different modes. The Dependency-Denier is expected to emphasize +2 and the plus direction, the Dependency-Acceptor -2 and the minus direction. The Vacillator will choose 0 more often than any other score. While the conflicted group is heterogeneous in so far as three different modes of conflict expression are possible, the group remains homogeneous with respect to the presence of conflict over dependency.

Viewed in conjunction with the findings of the pilot study, such considerations allow the derivation of an

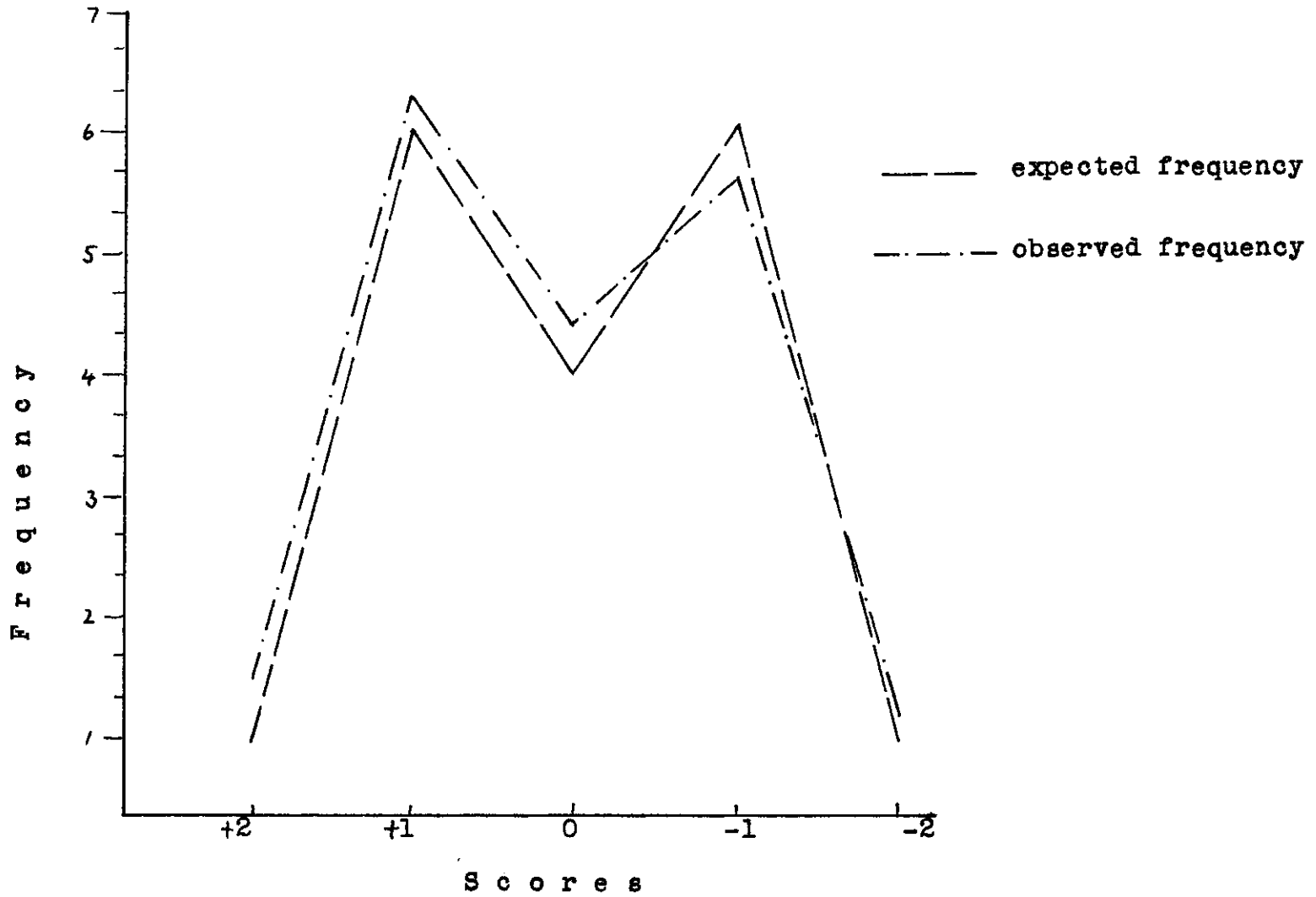


Fig. 2. Means of frequency of occurrence of PST scores and expected frequency of PST scores of nonconflicted subjects. N=43

operational definition of dependency conflict. The mean frequencies of occurrence of PST scores for the three subgroups of conflicted subjects and the expected frequencies for the respective subgroups are given in Appendix A. The expected frequencies were determined by choosing a line of best fit through observed data.

The score pattern of each subject was tested against the expected score patterns of the three subgroups. When no significant deviation occurred, a subject was included in the dependency conflicted group. Figures 3, 4 and 5 show the means of observed frequencies among Accepters, Deniers, and Vacillators, plotted against the pattern of expected frequencies. The data for these curves are given in Table II. The criteria for placing a subject in any one of the subgroups are contained in following definitions:

#### Definitions of Conflicted Group

**Acceptor:** A subject is conflicted if his performance on the Predicament Story Test yields a scoring pattern that does not differ from the pattern of expected frequencies for Accepters.

**Denier:** A subject is conflicted if his performance on the Predicament Story Test yields a scoring pattern that does not differ from the pattern of expected frequencies for Deniers.

Table II. Observed frequency of occurrence of PST scores in three subgroups of conflicted subjects, together with expected frequencies derived from pilot study.

Conflicted Group	Frequency	N	Scores				
			+2	+1	0	-1	-2
Accepters	$f_e$	11	1.20	2.40	3.60	4.80	6.00
	$f_o$		.82	2.64	4.31	3.85	6.38
Deniers	$f_e$	12	6.00	4.80	3.60	2.40	1.20
	$f_o$		5.14	5.98	4.16	2.02	.70
Vacillators	$f_e$	6	1.00	4.00	8.00	4.00	1.00
	$f_o$		.17	3.73	9.62	2.88	1.61

Total Conflicted  
Subjects

29

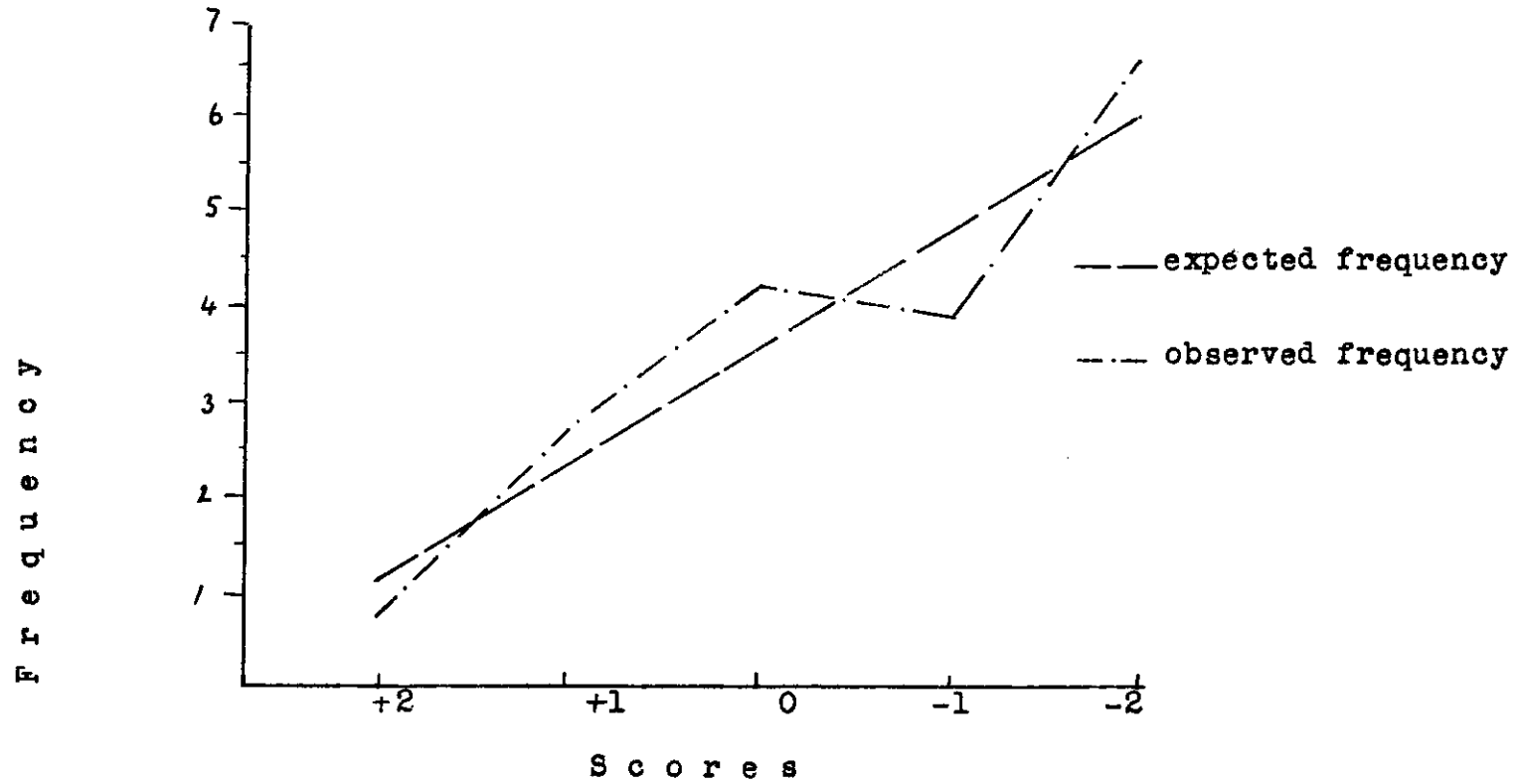


Fig. 3. Means of frequency of occurrence of PST scores and expected frequency of PST scores of Accepters. N=11

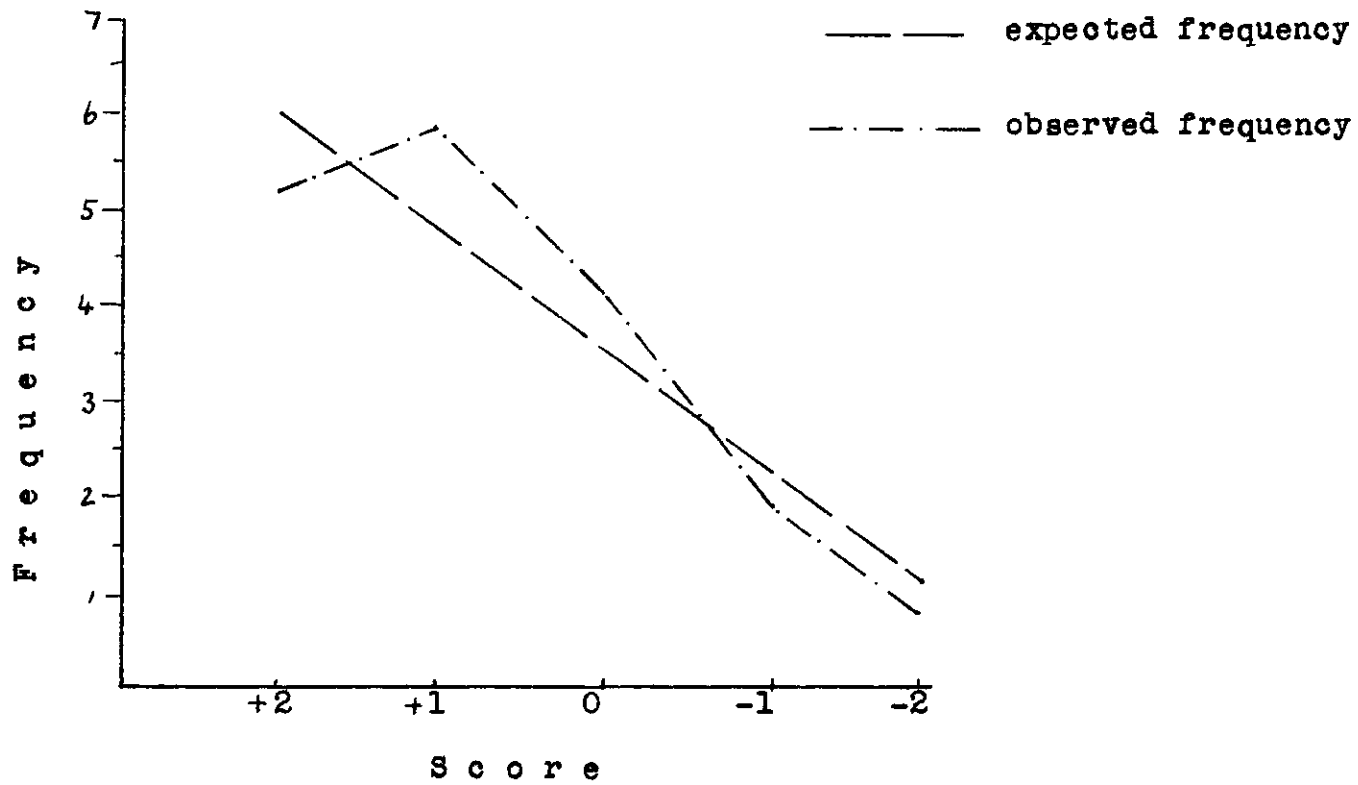


Fig. 4. Means of frequency of occurrence of PST scores and expected frequency of PST scores of Deniers. N=12

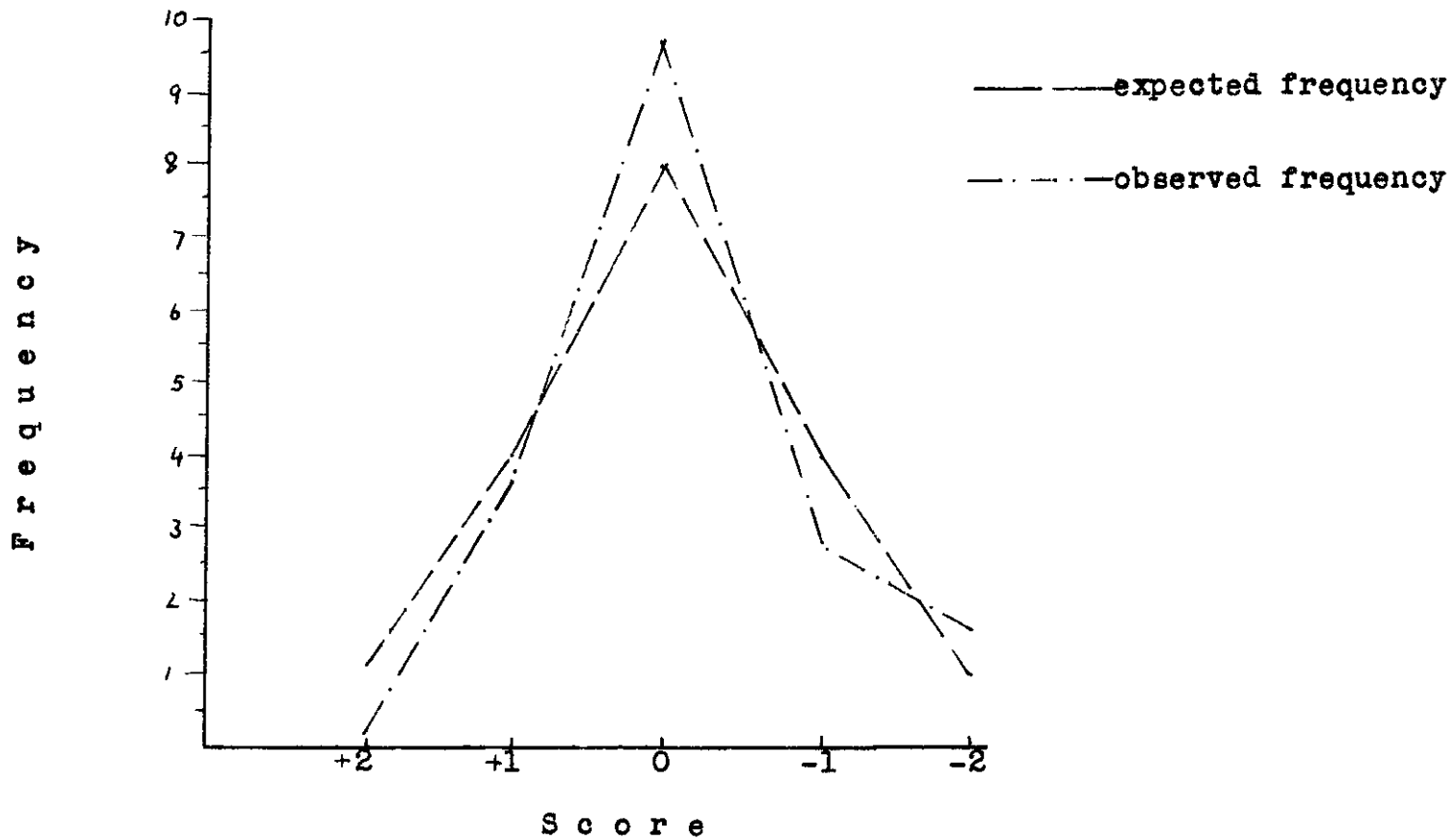


Fig. 5. Means of frequency of occurrence of PST scores and expected frequency of PST scores of Vacillators. N=6

Vacillator: A subject is conflicted if his performance on the Predicament Story Test yields a scoring pattern that does not differ from the pattern of expected frequencies for Vacillators.

Comparing the observed frequencies of a subject's PST scores with the expected frequencies provided a useful method of evaluating the experimentally determined results, since the frequency curves for each group differed considerably. The closer the observed results approximated expected results, the closer the agreement between the observed data and the hypothesis being tested.

The criteria for inclusion into either the conflicted or nonconflicted group were difficult to meet. Many test protocols, when they were not outright irregular in their scoring pattern, failed to reveal a definite trend. Subjects who showed only a tendency in the direction of any one of the three subcategories of the conflicted group without staying within clearly discernible limits of a good fit, were not included in the study. Thus, twelve protocols of eighty subjects participating in the investigation were not used. While the rejection of these protocols constitutes fifteen per cent of the total, the PST was nonetheless sufficiently discriminating for seventy-two subjects.

#### The Stimulus Variable

The stimulus variable in the present study consisted of two different prose passages equated on the basis of

length, i.e. practical frequency of words, and complexity of content, yet quite different with respect to the quality of content, one being the "neutral story" and the other the "dependency story." Clark,<sup>1</sup> who has paid much attention to factors influencing the recall of prose material, has suggested a method of stimulus-story construction which has been successfully employed by Gofstein<sup>2</sup> and which has served as a guide in the construction of the present stimulus variable. Clark introduced the useful concept of "unit idea" to indicate a natural subdivision of thought. This device allows the objective breakdown of prose material and lends itself particularly well to the construction of stories in which emotional content cannot be expressed in single words but must be expressed in themes.

The neutral story was developed in such a way as to be manifestly free of dependent connotation. In view of the definition of dependency used in this study, no references were made to authority figures or to family situations. Any mention of authority or family factors can be expected to arouse a motivational condition that cannot be regarded as dependency-neutral. It was particularly difficult to avoid any description of human behavior involving the dimension of activity-passivity. Inasmuch as this variable is crucial

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<sup>1</sup>Op. cit.

<sup>2</sup>Op. cit.

in any consideration of human action, it was felt that the story would remain neutral as long as people were depicted in normal daily activities. In its final form the neutral story contained sixty-five words, grouped in twelve unit ideas.

#### Neutral Story

John loves to go to the movies.  
 He is happy and excited  
 whenever he goes to a show.  
 He met Bill and asked,  
 "Want to see the new show?"  
 Bill came along.  
 As they entered the theater,  
 they met their schoolmate Fred  
 and asked him to join them.  
 Fred answered, "Surely, why not?  
 it is fun having company."  
 All of them had a good time.

In contrast to the story of neutral content, the dependency story contains a description of blatantly dependent human situations. As many thought units as possible were designed to express a dependency-charged theme, but the effort to give each unit idea dependent connotations was not successful. The story was to contain meaningful, colloquial prose, and every unit could not be loaded with a dependent theme. Such themes had to be conveyed in a sequence of units. Dependency was essentially expressed in the entire stimulus story. The principle guiding the construction of the story was the blunt expression of dependent, regressive, passive-submissive and ineffective human behavior reflecting lack of initiative and utter reliance on other people. In order to keep the two stimulus stories identical

with respect to formal characteristics, the dependency story also contained sixty-five words, grouped in twelve unit ideas.

#### Dependency Story

Joe cannot leave his mother.  
He whines and cries  
whenever she is out of the house.  
Joe misses her and says,  
"I need my mother;  
I cannot be without her."  
After mother returns home  
he puts his head into her lap  
and begs her never to leave him again.  
Mother comforts Joe and says,  
"My little boy,  
it is hard to grow up."

With regard to the formal structure of stimulus material, Gofstein questioned whether or not the equation of individual words for frequency of occurrence may be a relevant variable. He also stated that the emotional content of prose material is of such crucial importance as to render the equation on the basis of word frequency of secondary relevance. It was therefore decided to aim for structural similarity in the stimulus stories by keeping the length of unit idea similar and achieving a grammatical balance through relatively identical emphasis on the various parts of speech.

Three clinical psychologists were asked to rate the two stories according to neutral and dependent themes. They were asked to identify by inspection the neutral and the dependency story. No special instructions were given, except for advising them to use their own conception of

TABLE III

Frequencies of parts of speech in  
neutral and dependency stimulus stories.

	Neutral Story	Dependency Story
Nouns	14	10
Pronouns	10	12
Verbs	17	19
Adjectives	5	8
Adverbs	2	3
Conjunctions	3	4
Prepositions	11	8
Articles	3	1
Total	65	65

dependency in making their judgments. Without such special criteria for identifying the stories, the three judges showed complete consensus and rated the neutral and the dependency story according to the purpose for which they were designed. The probability of obtaining an agreement on three out of three chances is less than .02. According to this finding the dependency story is accepted as satisfying the requirements for the current experimental investigation.

#### The Dependent Variable

The dependent variable was the amount of learning that took place upon exposure to the stimulus material, *i.e.* the degree of retention of prose material, measured by a recall score.

The quantification of recall was achieved by assigning various scores to the recall reproduction of each unit idea in both stimulus stories. Predetermined criteria of accuracy of recall made scoring of all responses manageable. Scores of 2 points, 1 point, and 0 points were given to each reproduction of a unit idea so that a total recall score could be computed for each stimulus story. The general principles for scoring reproductions were formulated as follows:

- 2 points: Literal or almost literal reproduction of a unit idea.
- 1 point: Equivalent reproduction of thought units with stimulus material still identifiable. Partial omissions and insignificant additions.

0 points: Unrecognizable reproduction or total omission of unit idea.

Similar scoring techniques have been successfully employed by Cohen and Gofstein, who found them to be reliable and communicable methods of quantifying recall material.

Recall reproductions of all subjects were regarded as scorable. As long as they contained identifiable content of the stimulus material a score of one or two points was given. Total omissions and grossly distorted and unrecognizable reproductions were given no points. Faulty substitutions and irrelevant associations to the stimulus material were also scored zero.

The need for specific criteria for point assignment arose early in the study. To make possible a high level of agreement among various people scoring, detailed criteria for scoring each unit idea were developed. This list is included in Appendix B. It was necessary not only to delineate what constitutes a zero reproduction, but also to draw a fine distinction between the 2-point "almost literal" reproduction and the 1-point "equivalent reproduction." Furthermore, there was the problem of gratuitous elaborations and of minor distortions resulting from pluralization, the substitution of pronouns for nouns, and the use of synonyms.

A different sequence of unit ideas during reproduction tended to add to the complications of scoring reproduction. It was decided not to penalize a subject for recalling a

thought in different context, and such reproductions were treated as if they had occurred in the proper order.

Since the method of scoring recall reproductions is only aided, not perfected, by the detailed list of scoring criteria, a check on scoring reliability was made by correlating all the scores computed by the present writer with the scoring results of a clinical psychologist. The scoring techniques were discussed with this psychologist, and he was given a list of detailed scoring criteria. A Pearson-Product-Moment coefficient of .92 was obtained. This correlation coefficient is highly significant on the .01 level for an N of 72. This finding supports the assumption that the scoring procedures worked out for the quantification of recall data are reliable.

#### Statistical Hypotheses

The operations through which the relationship between dependency factors and the recall of dependency-related material was experimentally studied and have been described. The major hypotheses under investigation can now be translated into statistical terms. The null hypothesis below was derived from hypotheses 1 and 2.

Hypothesis 1: Recall efficiency of dependency-conflicted subjects will be detrimentally affected in the recall of stimulus material with dependency-charged content.

Hypothesis 2: Recall efficiency of nonconflicted subjects will not be affected in the recall of stimulus material of dependency-charged content.

Null-Hypothesis  $O_{1,2}$ : The difference between the mean recall scores of the conflicted group and of the nonconflicted group on the dependency-laden story is equal to the corresponding difference on the neutral story.

#### Alternative to the Null Hypothesis

Hypothesis  $A_{1,2}$ : The difference between the mean recall scores of the conflicted group and of the nonconflicted group on the dependency-laden story will not be equal to the corresponding difference on the neutral story. The difference will be on the dependency story. The mean of the conflicted group will be lower, while the mean recall score on the neutral story will be equal between both groups.

The interaction between the motivational state of dependency and stimulus material of neutral content led to the formulation of hypothesis 3. In order to test efficiency in the recall of neutral stimulus material in relation to

conflict status over dependency, the null hypothesis below was derived.

Hypothesis 3: Recall efficiency of dependency-conflicted and of nonconflicted subjects will not differ in the recall of neutral stimulus material.

Null Hypothesis  $O_3$ : The difference between the mean recall scores of the conflicted group on the dependency-laden and the neutral story is equal to the corresponding difference between the mean recall scores of the nonconflicted group on the dependency and neutral stories.

#### Alternative to the Null-Hypothesis

Hypothesis  $A_3$ : The difference between the mean recall scores of the conflicted group on the dependency-laden and the neutral story will not be equal to the corresponding difference of the nonconflicted group on the dependency-laden and the neutral story. The mean recall scores of the conflicted group on the dependency-laden story will be lower than the mean recall scores on the neutral story, while the mean recall scores on the dependency-laden and the neutral stories

will be equal in the nonconflicted group.

### Sample and Procedures

The subjects selected for this study were seventy-two male students attending Boston University College of Industrial Technology. All were freshmen, ranging in age between eighteen and twenty-two, the mean age being twenty years. Their educational background was uniform in that all had successfully completed high school and qualified for college entrance on the basis of the CEEB examination.

The subdivision of the freshman class into three academic sections necessitated that each section be seen independently for an experimental session lasting approximately one hour and a half. The writer went to each of these sessions, accompanied by the Director of Studies, who explained to all students the purpose of the procedure. He said that the author was presently engaged in an investigation of memorizing ability in relation to performance on a test. All students were asked to participate on a voluntary basis; none of the students withdrew.

Following this introduction, the Predicament Story Test was given. Twenty minutes were allowed, which was ample time for all subjects to complete the test. Upon surrender of test protocols, the following instructions for the recall task were given:

I am going to read you a brief story consisting of about five sentences. Listen carefully while I read it, because I shall ask you, when I am through

reading, to write down everything I read to you. Listen to every word I say and be sure to recall as exactly as you can. Are you ready?

The recall task consisted of the written recording of immediate recall of the two stimulus stories which were presented to all groups by means of a tape recorder.

Having completed the presentation of the stimulus story, the examiner paused for ten seconds, and then addressed the group, saying, "Now, what did I read to you? Write down everything you can remember. Begin at the beginning."

Ample recording time was allowed. After all subjects ceased writing the second stimulus story was introduced with the following instructions:

Next, I am going to read you another story of five sentences. Again listen carefully to every word I say and be sure to remember as accurately as you can. Are you ready?

The recording of immediate recall proceeded until all subjects indicated completion of the task. The total procedure took approximately one half hour with fifteen minutes for presentation and recall of each stimulus story.

The order of presentation was suggested by the results of pilot work. In all three sections the neutral story was presented first because during pretesting subjects had tended to overreact to the sudden confrontation of affect-arousing material and showed such marked signs of resentment upon hearing the dependency story that further wholehearted participation was not assured. In work done with hostile stimulus material similar observations were made.

The stimulus story constituted a threat to certain subjects which resulted in refusal to cooperate further. For these reasons it was decided to present the neutral story first.

Some thought was given to the formulation of the instructions for the recall task. Gofstein<sup>1</sup> found it necessary to omit a specific request for exact recall of stimuli. He felt that such a request introduced an element of threat which would disadvantageously affect the reproduction of stimulus material. Wechsler's work with his memory scale<sup>2</sup> does not take into consideration this variable so that it is probable that Gofstein was strongly influenced by the fact that his subjects were psychotic patients who were known to be conflicted over the expression of hostility. Keeping the experimental situation as free from threatening elements as possible was apparently a significant goal. In the current study specific instruction for exact recall did not constitute such a threat to the subjects. To the contrary, during pilot work the writer noted enhanced efforts to recall the stimulus material when instructions for exact recall were given. The absence of this request had led to more general recall and a tendency to paraphrase rather than reproduce verbatim. Because of these observations it was decided to include a specific request for exact control.

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<sup>1</sup>Op. cit., 33.

<sup>2</sup>D. Wechsler, "A Standardized Memory Scale for Clinical Use," J. Psychol., 1945, 19, 87-95.

## CHAPTER VI

### RESULTS

In the preceding section the experimental hypotheses were restated in terms of their underlying operational meaning, and statistical hypotheses were derived in accordance with the definitions of the relevant variables. The results will now be presented and subjected to a critical evaluation.

#### Stimulus Material and Conflict Status

Hypotheses 1 and 2 concern themselves with the relationship between recall efficiency and stimulus material in the two subject groups. It was hypothesized that the interaction of the motivational state of an individual with stimulus material is significantly influenced by the presence or absence of conflict. A subject conflicted over dependency can be expected to show inhibition of learning in a recall task involving dependency-laden stimuli, whereas no such inhibition should occur in the learning of neutral stimulus material.

Recall scores of all subjects are given in Appendix C. The mean scores on the dependency story were 10.55 for the conflicted group and 12.32 for the nonconflicted group, with corresponding standard deviations of 3.37 and 3.13. The

mean recall scores on the neutral story were 13.07 for the conflicted group and 12.13 for the nonconflicted group, with standard deviations of 3.42 and 3.27 respectively. These data are graphically represented in Figure 6.

On the neutral story there is a difference of .94 between the mean recall scores of the subject groups, while the difference between the same groups on the dependency-laden story is 1.77. The directional difference between these indices of recall discrepancy are consistent with Hypothesis A<sub>1,2</sub>. The recall data for the various groups are given in Table IV.

Treating the data by means of the analysis of variance technique<sup>1</sup> yielded results that are summarized in Table V. Appendix D contains the full data for the basic analysis of variance. The critical F ratio is formed by using the interaction mean squares of the stimulus material by subject groups, with a value of 60.09, as the numerator, and the interaction mean square of pooled subjects by stimulus material, with a value of 6.47, as the denominator. An F value of 9.29 resulted. For 1 and 70 degrees of freedom this F is significant on the .01 level.

Since the possibility existed that the significant F is attributable to dissimilar variances, the homogeneity of the variances was tested. An F ratio was formed and

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<sup>1</sup>A. L. Edwards, Experimental Design in Psychological Research, Rinehart & Co., New York, 1950.

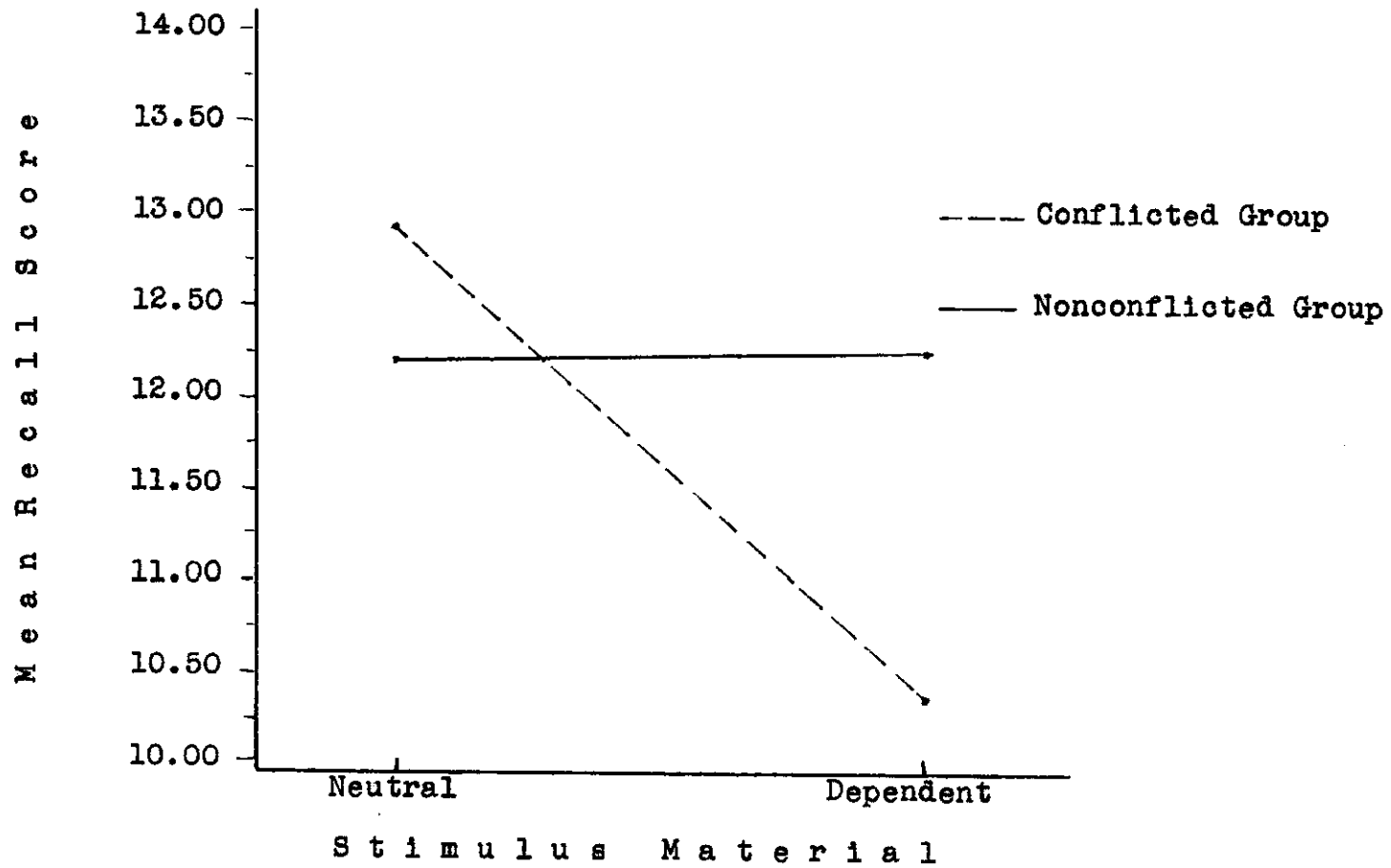


Fig. 6. Graphic representation of mean recall scores for the conflicted and nonconflicted subject groups on dependency and neutral stimulus material.

Table IV. Mean recall scores of two subject groups on neutral and dependency stimulus material.

	Conflicted Group	Difference between means	Nonconflicted Group
Neutral	13.07	.94	12.13
Dependency	10.55	1.77	12.32

Table V. Analysis of variance of recall scores for two subject groups, conflicted and nonconflicted, on neutral and dependency stimulus material.

Source of Variation	Sum of Squares	d.f.	Mean Squares	F	F <sub>.99</sub>	Decision
Interaction: Stimulus Material by Conflict status	60.09	1	60.09	9.29	7.01	reject
Interaction: Pooled Subjects by Stimulus Material	453.24	70	6.47			

found to be 1.15. This value is not significant for the 29 and 43 degrees of freedom available. It was therefore concluded that the assumption of homogeneity is tenable.

The finding permits the inference that the Null Hypothesis  $O_{1,2}$  may be rejected with a high degree of confidence. It may be concluded on the basis of the obtained difference of the difference between the means that the Alternative Hypothesis  $A_{1,2}$  is acceptable. Such a finding suggests that the difference as measured in the recall scores on the dependency-laden story is larger than the corresponding difference on the neutral story, the difference favoring the nonconflicted group.

On present evidence there is good reason to believe that the relationships postulated in hypotheses 1 and 2 hold true and therefore can be accepted. Such a finding offers support for the inference that cognitive efficiency, as investigated by means of a recall task, is dependent upon the conflict status of dependency in that the presence of conflict detrimentally affects the effectiveness of recall of dependency-laden stimulus material.

It is now important to test the null hypothesis that there is no significant difference between the means of the neutral and the dependent recall scores of either subject group. The alternative hypothesis states that there is a significant difference which reveals itself in a depressed recall score among conflicted subjects on the dependency

story. Table VI offers the statistics of the correlated  $t$  test used in testing the difference between these means.

The conflicted group obtained mean recall scores for the dependency-laden and for the neutral story of 10.55 and 13.07 respectively, the difference being 2.52. A  $t$  ratio is formed by dividing the difference by .907, the standard error of the difference. The resulting  $t$  value of 2.77 is significant on the .01 level for 28 degrees of freedom. The null hypothesis therefore has to be rejected. It is concluded that the two means differ significantly and that the discrepancy between them is greater than is likely to result from random sampling of a common population. It may be inferred with some degree of confidence that the conflicted group performed less efficiently in the recall task of dependency-charged material than on a task involving neutral stimuli.

The nonconflicted group showed an observed difference between the mean recall scores for the dependency and neutral story of .19. This discrepancy is assumed to be a deviant value from the population value which is said to be zero. A correlated  $t$  test was used to test the hypothesis that the difference between the means on the dependency story, 12.32, and on the neutral story, 12.13, is insignificant. The alternative hypothesis maintains that there is a difference in recall efficiency which favors the mean on the neutral story.

Table VI. Correlated  $t$  test of the difference between mean recall scores for the conflicted and nonconflicted groups on the neutral and dependency stimulus material.

Group	Stimulus	Mean	s	$t$	$t_{.01}$	Decision
Conflicted N=29	neutral	13.07	3.42	2.77	2.76	reject
	dependent	10.55	3.37			
Nonconflicted N=43	neutral	12.13	3.27	.27	2.71	accept
	dependent	12.32	3.13			

The statistics for testing the .19 difference are also presented in Table VI. By inspection alone such a low value appears insignificant. This impression was supported by the  $t$  test. Dividing this difference by the standard error of the difference, which was found to be .700, a  $t$  of .27 is computed. Under the hypothesis of random sampling from a common population the obtained  $t$ , for 42 degrees of freedom, is not significant at the 1 per cent level, the table value being 2.71. The probability of obtaining a value as large as .19 is considerably higher than .01, so that by the usual standard of significance the null hypothesis will have to be accepted.

#### Neutral Stimulus Material

The last section dealt with the problem of determining whether the difference between two means is significant when these means represent the performance of the same subjects under two different stimulus conditions. A closely related problem is concerned with the significance of the difference between the means on the neutral stories in both subject groups.

Hypothesis 3 concerned itself with the relationship between recall efficiency and neutral stimulus material in the two subject groups. It was hypothesized that the interaction between a dependency-conflicted or nonconflicted motivational state and neutral stimulus material is such that recall efficiency is not impaired.

As shown in Table VII, on the neutral story the mean recall score of the conflicted group was 12.13 and that of the nonconflicted group 13.07, the difference being .84. Can it be assumed with confidence that the difference between the population means of conflicted and nonconflicted subjects is zero and that except for accidental errors mean differences from sample to sample would be zero? In other words, the question is whether or not the mean difference of .84 is large enough to disprove the null hypothesis. In testing this question statistically a  $t$  ratio is formed by dividing the difference by the standard error of the difference, which was found to be .820. The resulting  $t$  value of 1.02 is not significant on the .01 level. Therefore, the difference of .84 might easily have arisen from sampling errors. Accordingly, the findings of the  $t$  test does not cast any doubt on the null hypothesis. On present evidence it can be concluded with confidence that there is no real difference between conflicted and nonconflicted subjects in the recall of the neutral story. A graphic representation of this finding is offered in Figure 7 in which the recall scores of the two subject groups on the neutral story are plotted together with the recall scores for the dependent story.

### Conclusion

The principal conclusion drawn concerning the

Table VII.  $t$  test of the difference between the mean recall scores of the conflicted and nonconflicted groups on the neutral stimulus material.

Group	Mean	s	$t$	$t_{.01}$	Decision
Conflicted N=29	13.07	3.42	1.02	2.65	accepted
Nonconflicted N=43	12.13	3.27			

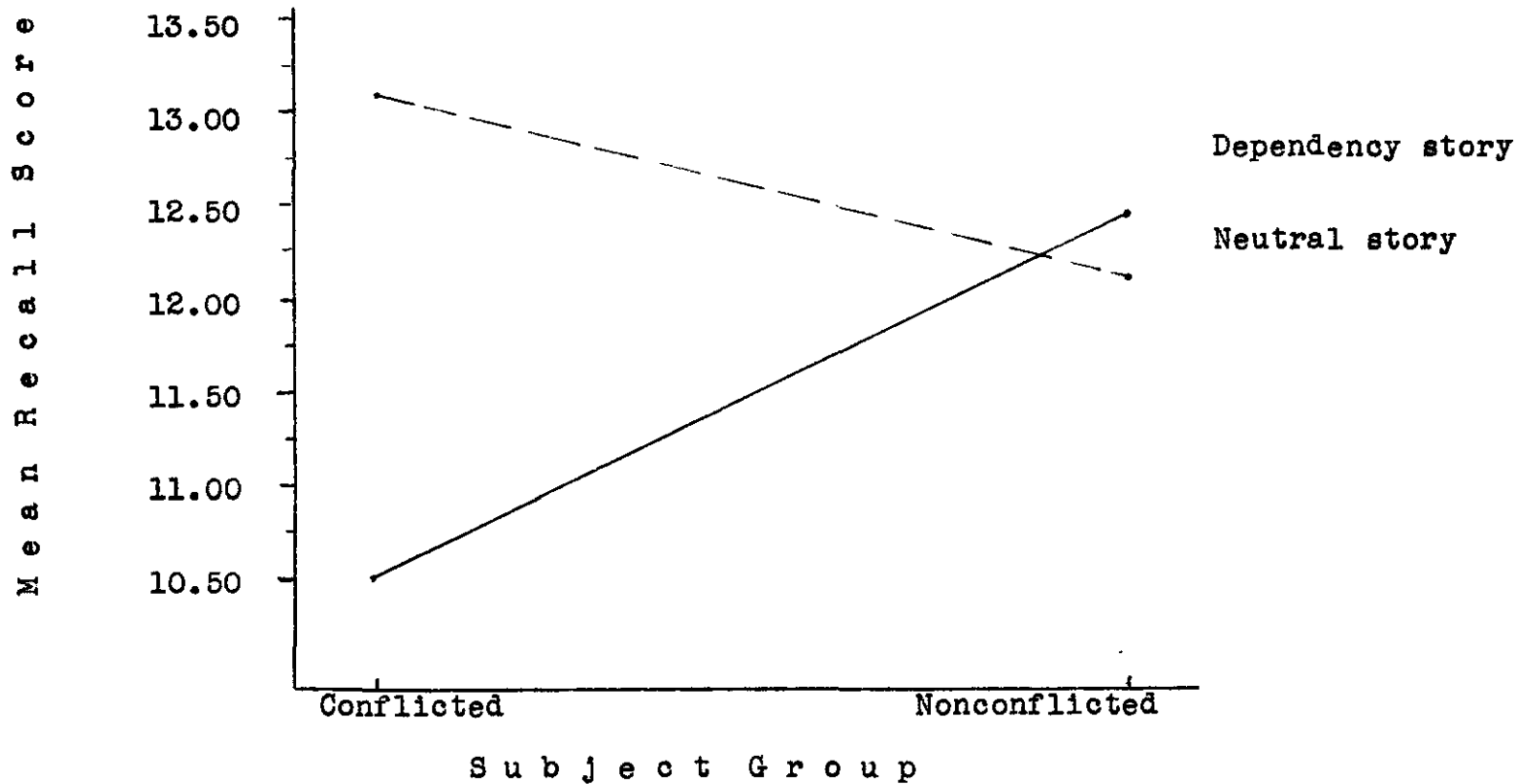


Fig. 7. Graphic representation of mean recall scores on neutral and dependency stimulus material for the two subject groups, conflicted and nonconflicted.

difference in mean recall scores on two types of stimulus material in the two subject groups may be formulated as follows: There is sufficient evidence to believe that inhibition in cognitive efficiency occurs when dependency-laden material interacts with a dependency-conflicted motivational state, whereas no such inhibition occurs in the interaction of neutral material with either dependency-conflicted or nonconflicted need states.

#### Additional Analysis

The dichotomous grouping of subjects according to conflict status was based on certain theoretical assumptions about conflicts over dependency. It was stipulated that dependency conflicts are expressed mainly in three distinguishable modes of behavior: Dependency Accepting, Dependency Denying, and Vacillation. Since it was assumed that the presence of conflict makes this group homogeneous, certain expectations can be maintained regarding identical behavior of these subgroups in a cognitive task. Even though the PST demonstrated homogeneity on the basis of the scoring patterns of subjects, it needs to be determined whether or not these subgroups also show identical characteristics in cognitive functioning. If this is so, Accepters, Deniers, and Vacillators should reveal in their recall scores a common tendency to recall dependency-laden stimulus material less efficiently than neutral stimuli.

On the dependency story the mean recall score for

Accepters was 11.17, for Deniers 10.33, and for Vacillators 9.83. The standard deviations for the groups were 3.01, 3.69, and 2.98 respectively. On the neutral story the mean recall score for Accepters was 12.17, for Deniers 13.33 and for Vacillators 14.16. The standard deviations were 3.31, 2.85, and 4.28.

The analysis of variance technique was employed to test the hypothesis that the mean recall scores are random samples from a common population and deviate insignificantly from an assumed value of zero. The relevant statistics are given in Table VIII, the full data in Appendix E.

The mean square based upon variation between subjects in the same group, which was found equal to 13.81, is used to test the significance of the mean square between the conflicted subgroups with a value of .40. The F ratio is determined by dividing .40 by 13.81. The resulting F of .03 is clearly insignificant for the 2 and 26 degrees of freedom available. From this finding it can be concluded that the difference between Accepters, Deniers and Vacillators can be accounted for by assuming random sampling from a common population.

The mean square derived from the interaction sum of squares for pooled subjects by stories will be used as an error term in testing the significance of stories and the interaction between stories and subgroups. The F value for stories is obtained by dividing 91.84 by 11.99, which yields

Table VIII. Analysis of variance of recall scores of three Conflicted subgroups on Dependency and Neutral stimulus material.

Source of Variation	Sum of Squares	d.f.	Mean Squares	F
Between Subgroups (Accepters, Deniers, Vacillators)	.81	2	.40	.03
Between Subjects in Same Group	359.11	26	13.81	
Total between Subjects	359.92	28		
Between Stories (Dependency and Neutral)	91.84	1	91.84	7.66
Interaction: Stories by Subgroups	7.30	3	2.63	
Interaction: Pooled Subjects by Stories	299.86	25	11.99	.22
Total Within Subjects	<u>399.00</u>	<u>29</u>		
Total	758.92	57		

7.66. This value does not meet the requirements of significance for 1 and 25 degrees of freedom, so it may be inferred that the story means differ and that the variation is larger than can be expected on the basis of random sampling from a common population.

In order to rule out the possibility that the significant  $F$  is attributable to dissimilar variances within the three groups, the homogeneity of variance was tested by Bartlett's method.<sup>2</sup> It was necessary to take into consideration the unequal number of observations among the subgroups. An  $X^2$  value of 3.68 was obtained in testing the hypothesis of random sampling from a population with a common variance. This value is not significant for the 2 degrees of freedom available. It can be assumed with confidence that the samples are not heterogeneous.

The  $F$  for stories by subgroup interaction is 2.62/11.99 which is equal to .22. For the 2 and 25 degrees of freedom, this value falls considerably short of the required value for significance.

The test of significance for the three conflicted subgroups is based upon independent subjects which were assigned to each group on the basis of their PST scores. However, the test of significance for stimulus material and the interaction between stories and subgroups is based upon

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<sup>2</sup>A. L. Edwards, Experimental Design in Psychological Research, Rinehart & Co., In., New York, 1950.

the same subjects of whom two measures were taken, a neutral and a dependent recall score. The comparison involves, therefore, two error terms in testing the significance, i.e. one for correlated data obtained from same subjects, and one for computations of data dealing with independent groups.

An inspection of recall tendencies of the various groups, graphically represented in Figure 8, indicates marked differences which deserve further attention. Even though the analysis of variance suggested that the three subgroups behaved identically and did not show significant deviation among their means on either the neutral or the dependency story, there is a tendency among the conflicted subgroups to recall more efficiently neutral material as the recall of dependency material gets depressed. The Vacillators, for instance, have the lowest mean recall score on the dependency story but also have the highest recall score of all three subgroups on the neutral story. The order in which the conflicted subjects recalled story material shows the least difference between nonconflicted subjects and Accepters. More pronounced differences between the former group and Deniers were observed, yet the difference between the nonconflicted group and the Vacillators was highly significant. It can be said that the Accepters behaved least according to expectation and showed a recall score pattern which resembles the pattern of the nonconflicted group more than it does those of the other conflicted

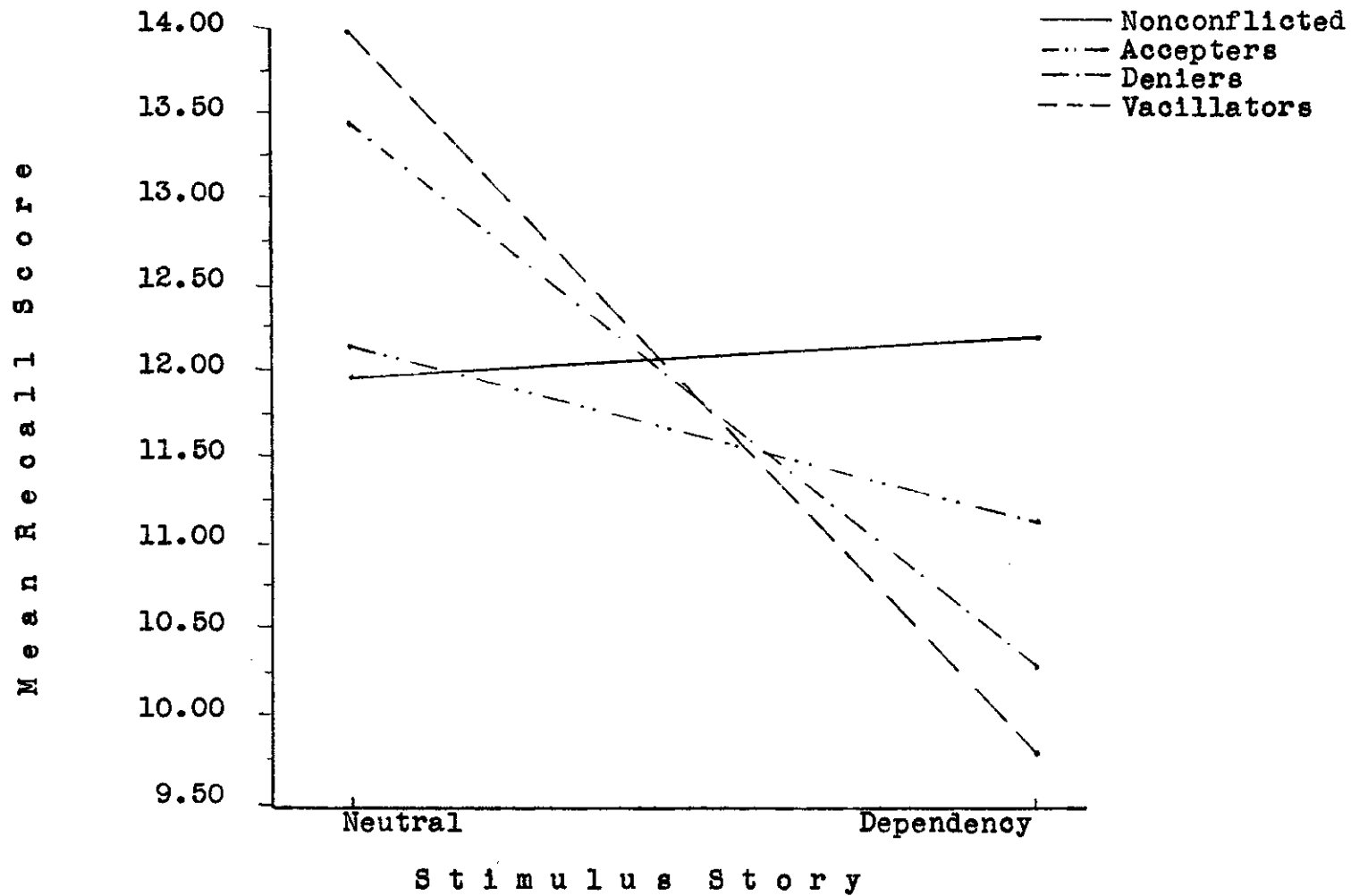


Fig. 8. Graphic representation of mean recall scores of three conflicted subgroups and the nonconflicted group on neutral and dependency stimulus material.

subgroups.

#### Additional Conclusion

There is sufficient evidence to believe that inhibition of cognitive efficiency occurs in all three conflicted subgroups when recalling dependency-laden stimulus material and that the recall tendencies among the three subgroups are identical. Nonetheless, there was a definite order in the recall of the subgroups. Neutral material was recalled more efficiently as the dependency story was recalled with less effectiveness. Although statistically the differences among the subgroups were not significant, there was a marked tendency among the Accepters to behave more like the nonconflicted group than like the other conflicted subgroups.

## CHAPTER VII

### DISCUSSION

The current investigation -- its theoretical foundation, its methodology, and its findings -- gives rise to considerations both of a general and of a specific nature. In this chapter the assets and limitations of the study will be discussed. Its contribution to the larger field of motivation-cognition research will be evaluated and related to the restrictions inevitably imposed by the narrowness of the research area and the tentativeness of the inferences that can be drawn from the results.

#### General Discussion

The findings of the investigations supported the hypotheses which were based on assumptions derived from related research efforts. It was shown that the interaction between a dependency-conflicted motivational state and dependency-laden stimulus material is characterized by general depression of cognitive efficiency, whereas the interaction of nonconflicted motivational states with the same stimuli is not characterized by such depression. Furthermore, it was demonstrated that neutral stimulus material interacting with a conflicted or nonconflicted dependency need state does not result in differentiating effects in cognitive

behavior.

The findings allow an inference regarding the relationship of dependency, conflict over dependency, and cognitive efficiency that generally strengthens the current position in motivation research; namely, that there appears to be a lawful relationship between cognitive behavior and need-related or need-alien stimuli that does not vary with different need states. Actually, study of the conflict status of motives and the resulting effects of such conflictual motivational states on overt behavior has been restricted mainly to the study of a few specific need states -- such as hostility, achievement motives, need affiliation, oral needs -- that lend themselves quite readily to methods of measurement, though the degree of precision in quantifying drive strength and identifying the conflict status of specific needs has not as yet reached a satisfactory degree of refinement. The present study has by no means escaped this measurement problem. However, in spite of certain inherent methodological difficulties, the results were quite encouraging in terms of offering promise for further research designed to isolate other specific motivational factors and to determine their role in cognitive behavior. In this sense, the primary purpose of the present investigation has been accomplished.

### Theoretical Considerations

The generally ambiguous status of motivational theory is a considerable handicap to experimental studies in this area. Many divergent views on motivation are maintained, and little attention has been paid to the experimental investigation of subtypes of motivational behavior. The present study required a broader theoretical frame than that provided by the more specific and descriptive approach of the experimentalist who maintains a strict stimulus-response orientation. The conception of motivation was based on a determination of empirical relationships, yet it did not account for theoretical assumptions merely in terms of specific stimulus-response interdependence. While it was explained that dependency was to be inferred from an overt behavior pattern indicating the presence of hypothetical events within the individual, the motivational state of dependency was essentially defined in terms of dynamic theory of human behavior. At the present time no unified theory of motivation has been constructed. Bolles<sup>1</sup> asserts that the concept of drive is still one that is introduced for reasons of usefulness when knowledge of specific types of behavior is very limited. This statement is certainly accurate in regard to dependency.

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<sup>1</sup>R. C. Bolles, "The Usefulness of the Drive Concept" in Nebraska Symposium on Motivation 1958, Univ. of Nebraska Press, Lincoln, Neb., 1958.

Dependency and the study of dependency can safely be said to fall within the proper domain of the clinician. The review of relevant literature pointed to the fact that clinical research, i.e. non-experimental research, has contributed most to a conceptual understanding of this need area. However, no unified theoretical treatment of the concept of dependency has been attempted as yet. This task still awaits the researcher. At the present time the contributions of dynamic theory offer the most plausible and succinct explanatory framework as far as dependency is concerned.

A dynamic frame of reference in defining dependency was chosen for three principal reasons. First, "motivation" is still a loose, generic term, and so far no integrated behavioral laws have been formulated which include all that is meant by it. Second, in agreement with Littman<sup>2</sup> it was felt that psychologists should work on mapping out the parameters of the various forms of motivational behavior before attempting to develop explanatory concepts which embrace the complexities of motivated behavior. Thirdly, dynamic psychology offers many useful theoretical constructs for the purpose of explaining human behavior and is particularly suited to theorizations about behavior reflecting dependent

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<sup>2</sup>R. A. Littman, "Motives, History and Causes" in Nebraska Symposium on Motivation 1958, Univ. of Nebraska Press, Lincoln, Neb., 1958.

need states.

Reliance on the conception of dependency provided by dynamic psychology is not a matter of expediency, that is to say, a matter of resorting to the obvious in the absence of nondynamic theories about dependency. If it is considered that the notion of dependency has particular relevance for theories of psychopathology, a dynamic orientation is almost mandatory. As was speculated in defining "dependency" the presence or absence of dependency conflicts has far-reaching significance for the mental and emotional health of the individual. The discussion of conflict expression led to the formulation of three basic modes of defensive reaction in attempting to resolve dependency conflict, modes which characterize the Acceptor, Denier, and Vacillator. However, whether or not this is the most appropriate conceptualization cannot be said with assurance; at least the results of the investigation shed doubt on the adequacy of the trichotomous grouping. The definitions of dependency and of the conflict status of dependency can be regarded only as a preliminary step in theorizing.

#### Methodological Considerations

The criteria developed for categorizing individuals into two groups according to conflict status involved the recognition of multiple modes of conflict expression. This fact considerably complicated the measurement problem which

had arisen earlier in the measurement of dependency factors as a motivating condition initiating, directing, and influencing cognitive processes. The psychological states underlying conflict are varied and do not allow dependency conflict to be viewed as a unified process which lends itself easily to objective measurement. Consequently, heterogeneity among subjects of the conflicted group had to be accepted, though with reluctance. The rationale for permitting such heterogeneity is of crucial importance because the differential predictions of the study were based on only two subject groups. The variable "presence of conflict" among Accepters, Deniers, and Vacillators had to be demonstrated to be the significant variable, making the conflicted group homogeneous. This variable had to be experimentally isolated in spite of the multiple modes of conflict expression. Indeed, the differentiation between conflicted and nonconflicted subjects constituted the major methodological hurdle in the present study.

A discriminating instrument was devised, and subjects were grouped on the basis of their performance on this test. This procedure was satisfactory from a methodological point of view. It certainly would have been more desirable to rely on a well-established technique if such an instrument had been available. The unsatisfactory state of quantifying devices in motivational research hampered the execution of the present study, but at the same time it led

to the construction and validation of the PST, a controlled projective technique to measure dependency factors. Although the findings of the reliability and validity studies indicate that the usefulness of the tool is limited, identification of the two subject groups was successfully accomplished. The heterogeneity of the conflicted group, therefore, did not obscure the theoretical issue and did not detrimentally complicate the measurement problem.

Dependency-Acceptors revealed a tendency in their cognitive behavior which was contrary to expectations. At first glance, this observation appeared to demand a revision of the assumptions regarding conflict status among Accepters. An inspection of the recall data of this subgroup suggested the presence of a variable which was not controlled. Apparently there were two types of Accepters, those who actually behaved according to predictions for the entire conflicted group, and those whose recall data favored neither the neutral nor the dependency-laden story, thus behaving in conformity with the nonconflicted group. Clinically, such an observation is quite plausible. The acceptance of a dependent relationship to external reality need not necessarily be determined by fear of failing in an independent situation, but can be a need-related motivational state, not involving conflict over the presence of passive-submissive tendencies which characterize the dependency-accepting person. While in some Accepters conflict over

dependency places them among conflicted subjects, in others dependency is an integral part of their need structure and no conflict is experienced. In the latter case, stimulus material connoting dependency will not interact with a conflictual need state, and cognitive efficiency cannot be expected to be impaired.

It can now be concluded, first, that the major criteria for discriminating between the two subject groups are adequate. The fact that the conflicted subjects were heterogeneous in regard to certain behavioral characteristics does not obscure the basic assumptions as to the meaning of conflict. Second, the concept of dependency is adequately defined and has served as a theoretical basis for delineating not only conflict status but also differences in the modes of conflict expression. Third, the sensitivity of the discriminating instrument can be judged sufficient.

#### Implications for Further Research

The above discussion suggests several possibilities for further research. (1) There is a need for the study of other motivational conditions in relation to cognitive behavior. (2) The conceptualization of the motivational state of dependency should be developed and refined so that dependency can be related more systematically to dynamic theory and psychopathology. (3) The construction of the PST as a quantitative technique in the measurement of dependency

factors might well be pursued further through modification of the test and more extensive research. (4) The relationship of dependency to the developmental and sexual status of individuals needs clarification.

#### Other need areas

Uncertain and unfocussed as motivational research is at the present time, it is finding direction and a unifying theory through the systematic exploration of a variety of need states. The consistency of the relationship between motivation and cognitive behavior, which has been suggested by numerous investigations and which is supported by the findings of the present study, can be established through rigorous isolation of relevant motivational variables. Cognitive functioning may be better understood as specific need states become experimentally controllable and more specific delineation of cognitive processes can be made. Research in the area of cognition-motivation interdependence will also eventually contribute to a better perception of the relationship of needs to each other, and the pattern of need regnacy, and hierarchy of needs will come into focus.

#### Conceptualization of dependency

Apart from the study of other motivational states, the conceptualization of dependency itself demands more attention. Very little is known about the inner processes that evoke behavior patterns of dependency. In this study a

developmental-dynamic orientation was chosen. Speculations about the vicissitudes of this universal, developmentally determined motivational state have led to a clinical formulation of conflict and of management of conflictual need states. A conceptual basis was derived for the identification of various types of defensive reaction to conflict. This definition of Accepters, Deniers, and Vacillators can undoubtedly be refined as further knowledge about dependency is accumulated.

The relevance of the suggested line of investigation can be readily seen in the significance of the concept "dependency" as a clinical term in the field of psychopathology. Psychosomatic medicine in particular has pointed to the crucial importance of dependency in the etiology of gastrointestinal and respiratory disturbances. Psychoanalysis also finds the concept "dependency" indispensable as a working concept, even though it does not make any systematic assumptions about it.

More is to be learned, too, about the theory involved in identifying conflict status. In the current investigation, it was postulated that dependency conflicts are most likely to occur in the areas of parent-child relationship, relationship to authority, and orientation to activity. While they were instrumental in translating the definition of dependency into operationally useful terms, and in the construction and development of the PST, no analysis of

scoring patterns was made in relation of these three behavioral areas. By inspection of test protocols it was observed that a noteworthy variability existed in the scoring tendencies of a given subject among the three areas. For instance, one Dependency-Denier scored as a Denier in the area of parent-child relationship and also in regard to activity orientation, yet in the area of relationship to authority he scored like nonconflicted subjects. It is still poorly understood why the predicted consistency did not occur in all subjects and why conflicts sometimes appeared to be localized. Clearly it is desirable that dependency be approached with more exacting techniques to isolate and study all relevant variables. When such studies are undertaken more insight will be gained into the nature of dependency, and the crucial differentiation between situationally determined dependency and dependency which is a constant element in the personality structure.

#### Quantifying techniques

It follows from the above considerations that the rationale and construction of the PST can be improved to make it a more sensitive tool. If conflicts in the area of parent-child relationship are not necessarily generalized to other critical areas such as relationship to authority, quantifying techniques will have to achieve greater sensitivity to differentiate among these varied motivational

conditions. Once it is better understood under what circumstances and in what situations dependency needs are aroused, a more precise instrument can be developed and dependency factors can be experimentally controlled and manipulated more effectively.

#### Developmental and sexual status

Mutual dependency is a universal characteristic among human beings. Indeed, during infancy and childhood it is essential to survival. Throughout all of life, interdependence is present. While there is a tendency to assume that the course of human development involves a change from dependence to maturity or independence, dependence and maturity are not mutually exclusive. The nature of dependency is merely modified. Theoretically this developmentally determined modification is quite well understood, yet experimentally little evidence has been gathered that relates the pattern of modification to various behavioral sectors. Relatively little is known about dependency and conflicts over dependency on different developmental levels.

The findings of this study, which was confined to post-adolescents between the ages of eighteen and twenty-two, cannot be applied to other age levels. The post-adolescent period is a stage of emotional growth where dependency has a particularly significant role in terms of attainment of adulthood and the concomitant necessity to resolve whatever conflicts around dependency were carried since childhood.

The psychological structure of the adolescent lends itself very well to the study of dependency because of these accentuated adjustment demands.

More study of dependency in this, and other, developmental periods is needed. Such a suggestion is based on the belief that no ultimate understanding of the relationship of dependency factors to development can be derived from the current investigation.

Early in the development of the PST difficulties were encountered in obtaining comparable results from both sexes. During pilot work, female subjects gave test protocols which revealed a marked tendency to score the patterns of Dependency-Acceptors. This observation has mainly led to the control of the sex variable. There was sufficient evidence to believe that in matters of dependency needs both sexes did not behave identically. Female subjects not only tended to prefer dependency-accepting choices on the test but also showed avoidance of dependency-denying choices. This finding suggests that the nature of expression of conflicts among female subjects is significantly different from that of males. It cannot be said with assurance whether or not this observation indicates the presence of a biological and/or cultural variable affecting both sexes in different ways. On clinical grounds it seems plausible to assume that the socio-cultural environment actually structures feminine roles in such a way as to

foster dependent and passive-submissive patterns, thus equating femininity and dependency acceptance. Raising the question of dependency acceptance as a sex-linked need state has weighty consequences in terms of theory and further research. This area could not be explored in the present study, yet it is unquestionably an important field for investigation.

## CHAPTER VIII

### SUMMARY

This study is an investigation of the relationship between the motivational state of dependency and the recall of dependency material. Recent research has shown increasing interest in need states of individuals and in establishing relationships between need-related stimuli and cognitive behavior. Work by Williams, Wolf, Maccoby, Cohen and Gofstein suggests that facilitation of learning occurs if there is a congruence between a person's motivational state and the cognitive task he is asked to perform. Inhibition of learning can be observed if the need state interacts with inconsonant stimulus material. A systematic investigation of specific need states is still lagging. Studies have examined the drive state of hostility, oral needs, and achievement motives. An implication of their findings is that the relationship between stimulus material and motivation is not confined to the few isolated need states studied but has general validity in the area of learning and motivation. Since relatively little is known about the consistency of the cognition-motivation interdependence, this study attempts to determine whether or not similar expectations can be maintained regarding the

motivational state of dependency.

Dependency needs are defined in terms of hypothetical events within the individual which can be inferred to be present on the basis of overt behavior patterns. A developmental and dynamic point of view is chosen in elaborating "dependency" as being a basic need universally found in human beings and having universally an important role in the process of maturation and socialization of the individuals. It is proposed that dependency needs are a significant motivational component in human behavior revealed in overt attempts to gain support and protection. Biologically predetermined, they are learned tendencies to be insecure, deprived, and anxious in the absence of support and protection. Any stimulus situation signifying such a lack can be said to build up a potential, or can acquire a potential through learning, for an arousal of the motivational state of dependency. This learned tendency then functions in mobilizing behavior patterns in pursuit of these goals.

On the basis of theoretical considerations concerning the concept of dependency and on the basis of assumptions derived from related experimental studies, the following general hypothesis is formulated:

**General Hypothesis:** Response variation in the performance of a cognitive task can be systematically related to the conflict status of a specific need. Need-related

stimulus material interacting with a nonconflicted motivational state has a facilitating effect, while the same stimulus material interacting with a conflicted motivational state will show inhibiting effects.

Assuming that the general hypothesis holds true and assuming further that the conflict status of individuals can be experimentally controlled, the following specific hypotheses were derived from theoretical relationships which appear to exist between dependency needs, conflict over dependency, dependency-laden stimuli, and cognitive efficiency:

Hypothesis 1: Recall efficiency of dependency-conflicted subjects will be detrimentally affected in the recall of stimulus material with dependency-charged content.

Hypothesis 2: Recall efficiency of nonconflicted subjects will not be affected in the recall of stimulus material with dependency-charged content.

Hypothesis 3: In the recall of neutral stimulus material the recall efficiency of conflicted subjects will not differ from that of nonconflicted subjects.

The method chosen to investigate the hypothesized relationships utilizes the recall of prose passages. Two stimulus stories were designed, one having dependency-laden content, the other having neutral themes. Each story consisted of sixty-five words grouped into twelve thought units.

The grouping of the subjects was done by means of a multiple-choice story-completion technique. The choices were arranged in five intervals ranging from extreme independent solutions to a predicament situation to extreme dependent ones. Each subject was assigned to either the conflicted or the nonconflicted group on the basis of scoring patterns which were empirically derived from pilot work. Conflicted subjects fell into three subgroups, called Dependency-Acceptors, Dependency-Deniers, and Vacillators, according to the emphasis in their scoring pattern. Deniers heavily favored independent choices on the test, Acceptors preferred dependent choices, and Vacillators selected ambivalent choices more often than dependent or independent ones.

Seventy-two subjects were included in the study. They were all male students at the Boston University College of Industrial Technology. Of these, forty-three were classified as nonconflicted, and twenty-nine as belonging into the conflicted group. There were no significant differences in age or intelligence. Subjects were seen in one session in

which they were first given the story-completion test. After collection of all test protocols the neutral stimulus story was read. A measure of immediate recall was taken following the instruction to write down the story as verbatim as possible. Upon completion of this task, the same procedure was used in presenting the dependent stimulus story. Recall data were scored according to scoring criteria which allowed the assignment of weights to each recalled thought unit, depending upon accuracy of recall.

For the conflicted group the mean recall scores on the neutral and dependency stories were 13.07 and 10.55 respectively. For the nonconflicted group the mean recall scores on the same stimulus material were 12.13 and 12.32 respectively. An analysis of variance technique was employed to test the statistical null hypothesis that the difference between the mean recall scores of the two major groups on the dependent story will be equal to the corresponding difference on the neutral story. The alternate hypothesis was supported because the statistical null hypothesis had to be rejected at less than the .01 level of significance. It was inferred that the difference is not attributable to deviations due to random sampling from a common population. Thus, the first two hypotheses were supported by the findings. The differences in mean recall scores of neutral stimulus material were examined by means of a  $t$  test. The resulting  $t$  value was not significant on

the .01 level so that no reasonable doubts can be maintained about the null hypothesis. It is concluded that there is no real difference between conflicted and nonconflicted subjects in the recall of neutral stimulus material.

An additional analysis was made to examine the nature of the differences among the means of the three conflicted subgroups. An analysis of variance allowed the inference that the mean recall scores of Accepters, Deniers and Vacillators on the dependent story was not equal to the difference on the neutral story. There was significant inhibition in these subgroups in the recall of dependency material.

The main conclusions drawn concerning the difference of mean recall scores in the conflicted and nonconflicted groups were: there is evidence for believing that inhibition in cognitive efficiency occurs upon interaction of dependency-conflicted material with a corresponding conflictual motivational state, whereas no such inhibition occurs in the interaction of neutral material with either dependency-conflicted or nonconflicted motivational states.

The findings of the present study offer further evidence for believing that a certain general relationship exists between motivation and cognitive processes. It was suggested, however, that there is a need for further isolation of specific need states and other relevant variables before systematic assumptions can be made and before explanatory concepts can be developed which embrace parameters

of the variety of motivational behavior. Other implications for further research are discussed, particularly the need for more refined quantifying techniques, more systematic treatment of the concept of dependency and study of this concept in relation to the variables of sex and development. The relevance of dependency for the larger field of psychopathology was pointed out.

APPENDIX A:

THE PREDICAMENT STORY TEST

## THE PREDICAMENT STORY TEST

Test booklet

Weights for choices on each of eighteen items on PST

Test description

Scoring method

Rationale

Test construction

Reliability and validity

PREDICAMENT STORY TEST

Edeff H. Schwaab  
Boston University

Information:

Name: .....Age:.....Birthdate:.....

Address:.....Phone:.....

School:.....Class:.....

Instructions:

The Predicament Story Test is a multiple choice test. The following pages contain a series of stories of people who find themselves in some kind of a predicament. After you have finished reading each story, please check one of the five possible outcomes given for each story. Make a check mark in front of that choice which you think the person in the story is going to make in solving his predicament. There are no wrong answers for these stories. Take as much time as you wish in checking your choice. Go ahead.

1. Larry has been working for a firm for a good many years. They are opening a new plant out of town. He has thought of talking to his boss about going there and getting a chance to improve his position. On the other hand he likes his present job a lot. He is not sure what to do.

Question: Most likely Larry will do which one of the following?

He will immediately talk to his boss and apply for a new position. If he is not advanced he will quit and look for a better job.

Larry will stay where he is. He has steady work and likes it. Since he has not been promoted over the past years, he sees no chance to improve now.

He will take a wait-and-see attitude. In matters like this he has to weigh all circumstances before he can make a decision.

Larry would like to have the new job but feels, if he is really good enough for it, his boss will come and talk to him.

He will decide to learn more about the job in the new plant. If he likes it, he will consider going there and will apply for it, soon.

2. Toni is running a little grocery store, but he is not doing too well. One day he learned that they are going to build a new Super-Market nearby. His wife was greatly concerned about stiff competition and said, "Toni, we have saved up enough money. Why not quit and retire while we are ahead. I cannot imagine how we will be able to compete with a Super-Market." Toni has trouble making up his mind.

Question: Toni will eventually decide to do which of the following?

Toni decides it is smartest to quit before the Super-Market can push him out of business. He will retire while he is still ahead in the game.

He gives a lot of consideration to his wife's advice to quit, but he also feels that he could keep the store open if he really tried.

Toni is concerned about the situation but will keep the store open until he cannot compete any longer, then he will see whether he can open a new store in a different location.

He is quite worried but he will try to keep the store open. As soon as he feels that the business is failing, he will close down and retire as his wife has suggested.

Toni is stubborn and will hang on. He is not afraid of competition and feels that he can handle a situation like this.

3. Bill lives with his family. He heard about a job out of town and is curious what it is like. On the other hand he likes the idea of staying with his folks and working right in town.

Question: What is Bill going to do?

Bill can actually do one of several things. If he wants a new job he will look for one, but if he doesn't he will stay where he is.

He will go out and take a look at the job. He will take it if he thinks he is getting a good deal.

Since he is satisfied with his present set up, he will consider a change only if a good opportunity offers itself to him.

Bill is the enterprising type who goes out at once, takes the job, and moves out of his home.

Since Bill likes the idea of working in town, he probably will not bother looking for a new job.

4. Milt has just finished engineering school and is on his job. One of his first assignments is very difficult. He is not sure whether to consult his boss or give it a try all by himself.

Question: How does Milt handle his problem?

Milt decides first to give it a try alone and then to go to his boss should it become necessary.

He consults with someone who has had experience. Perhaps he will find out that he can do the assignment all by himself.

Milt has confidence in his ability and feels he should try by himself. He does not want his boss to consider him incapable of handling his job.

He is anxious not to make any mistakes. Being new at the job he decides to consult his boss.

What Milt will do depends entirely on the given situation. He has to consider his abilities as well as his position and his relationship to his boss.

5. Ted got into a discussion of how people should settle their affairs. He heard some say that everyone should try to work out things his own way. Others replied that it is foolish to try to prove that you can do things all by yourself.

Question: What position does Ted take in the discussion?

Ted believes that it is always a good policy to get the advice of others but that there are situations which everyone can handle himself.

He thinks he has very good judgment and can stand on his own two feet. Therefore, he takes the position that he can settle his own affairs.

Ted feels there is always a touch of doubt as to the right or wrong in the things we are doing so that it is always wise to make use of the help of others.

He takes the stand that no rule can be made about how people should settle their affairs. Not everyone can make use of help, even though there are people well qualified to give advice.

Ted feels that one should try to work out things by oneself as much as one can without hesitating to ask for help if necessary.

6. One morning Bob sat at his breakfast table feeling low and depressed. When his parents asked him why he is so unhappy and what the trouble is, he was not sure whether or not he should tell them about his feelings.

Question: After thinking about it, what will Bob do?

Bob feels strongly that one should never let people know about one's troubles. He does not make any exceptions and does not tell his parents what is bothering him.

He feels that talking about one's troubles helps a lot. It makes you feel better to share your feelings with others. Bob therefore will talk to his parents.

If he feels his parents can offer help, he might tell them, but he cannot be sure how much good it is going to do. Perhaps he decides not to speak up.

Bob feels it is perfectly all right to talk to his parents or friends, although, as a rule, he does not want to do this all the time.

Ordinarily Bob does not share his troubles, but when they are serious enough he makes an exception.

7. Fred is a production worker. One morning his foreman comes over and complains about some pieces of bad work. Fred is embarrassed. Later on he discovers that the pieces were not made by him after all. He is not sure whether he should speak up and tell his foreman or simply forget about the whole matter since it had not happened before.

Question: What course of action does Fred chose to take?

Fred feels there are no serious consequences, so why stir up trouble. He dismisses the matter as unimportant.

His decision depends a lot on personalities, his own and his boss'. He must consider both possibilities of speaking up and keeping the whole matter to himself.

Fred asks his foreman to check up on the story, but in doing so is careful not to imply that his boss might be wrong.

Fred waits a reasonable length of time for the foreman to bring up the matter first. If the boss does not discover his mistake, Fred will wait for an opportunity to call it to his attention.

Fred knows he has been done a wrong. He certainly will tell the foreman that the bad pieces were not his. He does not want a bad work record for the future.

8. Nick is running his own gas station. After a while he realized that he could not make ends meet. He lost every penny he had and just did not know what to do next. He thought of borrowing money and starting all over again somewhere else, and yet, he was thinking of taking some steady job and forgetting about his ambitious dreams.

Question: In the end what does Nick decide to do?

Nick tries to evaluate his venture to see why he failed. If he learns his shortcomings he then can decide better what he wants to do.

He feels he lacked expert advice on how to run a business. He gets some help and secures a loan to start anew somewhere else.

Nick believes it is best to take a steady job first and gain more experience. Should he find a good business partner, he will consider opening a new station.

He is not the type to forget his ambitions. He will not be happy with a steady job. He starts all over again at a new place and hopes for better luck this time.

Looking at the situation realistically, he admits that he is not suited for this kind of work and takes a steady job.

9. Ralph suddenly lost his job. He was quite upset and did not know what to do. He had bad luck looking for new work as times were tough. His parents told him to come home and join the family business, if he would like to do that.

Question: Facing a difficult choice what does Ralph do?

First he will continue to look for new work. If he is not successful, he will then take up his parent's invitation and go back home for the time being.

Ralph decides to go home and look for work from there. Only if he has no luck finding work will he consider working for his father.

He decides that the offer of his family is an opportunity. He goes home and is most successful in his father's business.

He refuses the offer of his parents because his father did not ask him any earlier to join his business. He therefore will try hard to work it out his own way.

Ralph considers whether or not father's job is his specialty. It is not always good for company morale for a son to work there. He also must be clear in his mind what he really wants to do.

10. Frank is a clerk in a small office. One morning he discovers that he had forgotten to turn off the lights the night before. He feels bad about having failed in one of his duties. He thinks of reporting the incident to his boss. Then he hesitates and wonders whether or not to keep the whole matter to himself.

Question: How does Frank solve his dilemma?

Frank decides to talk to his boss since he wants to remain an employee in good standing, but he really does not place much importance on the whole matter.

He dismisses the incident. He got to the office in time to turn off the lights. Nobody knows about it and no damage was done.

Frank thinks it is wise to report it. He wants to stay in his job with a clear conscience; after all he realizes that he made a mistake.

What Frank will do depends on what kind of boss he has. In some situations it seems best not to report while in others he should.

He decides not to speak up but feels uneasy about it. Should the boss find out about it, Frank will admit his mistake.

11. A group of boys have gathered on a field when an argument develops about what they are going to do. They decide to play football -- something Allan does not care for at all. He is not sure whether to go along with the fellows or simply do something he likes.

Question: What does Allan choose to do in the end?

Allan feels there is no sense in participating in anything that is no fun. So he takes off by himself and does something else that he likes.

He feels it is always good to stay with the crowd and do whatever they do; no matter how much he dislikes it. He stays and plays football with the others.

He desires to tell the boys he does not care for football and to try to have them play something else. If he is not successful, he will leave, hoping that they will play something he likes next time.

Allan thinks it is best not to leave, but he does not join the game. As soon as they do something else, he is back in the group.

Allan feels it does not make much difference what he does. He can stay if he wants to, or play, or leave as he pleases.

12. Carl is in college. He had planned to go home for the summer as he does not have to take a job. However, he does not like the vacation plans of his family. He cannot make up his mind whether he should go home in spite of that or make his own vacation plans.

Question: What decision will Carl eventually make?

He owes his parents gratitude; after all they sent him to college. If they insist on his coming home, there is not much he can do. In any case he always manages to have a good time with them anyway.

Carl cannot make up his mind so quickly. He hopes that things will resolve themselves with them. When summer comes he will make a decision one way or another.

He tries to persuade his folks to change their plans. If they insist on going where he does not want to go, he will make his own plans.

If his parents are very insistent on seeing Carl, he will go home, but he will make sure that he has a good time.

Carl will not miss a chance to spend his vacation the way he wants to. He ignores his family's wishes and has a hell of a good time all by himself.

13. Walt is a self-employed electrician but somehow cannot make a good living at it. His friends have told him not to be so stubborn struggling alone with his trade. One of them said, "What is wrong with working for a good boss? Take a job as an electrician and you are always well paid."

Question: How much consideration does Walt give to his friend's advice?

Walt faces a difficult decision. He must make up his own mind about what he really wants to do. If he wants a job, he should take one, if he decides on his ambition, he will stay self-employed.

For the time being Walt will take a job. After having learned a few more things about running a business, he tries again as a self-employed electrician.

Walt gives up his dream after this failure. Security is worth more to him. At a later date he might try again with a new partner.

Walt thinks his friends' suggestions foolish. He knows he will not be happy with a job. He stays self-employed, no matter what.

Walt begins to look at the situation realistically. Even though he knows his work, he failed in business. Perhaps he is not cut out to try by himself. He listens to his friends and takes a job.

14. Harry had a serious operation. He was in the hospital for quite some time. When he was all better, the doctor said he could go home as soon as he felt ready for it.

Question: What does Harry actually do?

The doctor has said he is O.K., so he is ready to leave, but he would have liked to stay on a little longer to get the benefit of the hospital service.

Harry liked the hospital and stays for a while. After getting a good rest, he leaves and goes back to work.

Harry sees no point in staying any longer and asks the doctor to check him out. As soon as he gets home he will report back to work.

Having had an operation Harry does not want to rush home. The doctor left it up to him, so he stays as long as he reasonably can.

He does not know what to do. He knows he has to be interested in his health as much as in getting back to work.

15. John likes to wear outlandish clothes. His parents commented on his way of dressing and asked him to be more conservative. On the one hand he considers his parents' advice, on the other hand he likes to do things his own way. He is not sure what to do.

Question: How much attention does John pay to his parents' opinion?

Basically John does not want to be different from others and takes his parents's advice. He still can try to show his individuality in little ways.

John is a strong individualist. Instead of conforming he enjoys being even more radical and rebellious.

John did not realize how much outlandish clothes would set him apart from others. He therefore listens to his parents and changes his habits.

John tries to understand first why he wants to be different. This will help him make a decision one way or the other.

John realizes the need for conformity and listens to his parents. But he goes right on doing what he likes to do, at least for the time being.

16. On his job Roy is a very agreeable fellow. His boss is often unpleasant to him for no reason. His friends tell him to forget about his politeness at such times and take a stand. Roy feels that his friends make a good point, but he does not want to stir up any trouble.

Question: What does Roy do the next time his boss is disagreeable?

Roy takes his friends' advice and speaks up. He hopes that his boss will respect him for it and treat him more fairly in the future.

Roy thinks it is definitely a mistake to affront his boss. After all, he cannot change his personality over night.

Somehow personalities clash, and Roy must try to understand the reason for it and react to the situation accordingly.

Roy does not find it easy to speak up, but he does. In his polite way he tells his boss he likes to work in a friendly atmosphere and wants to know if there is anything he does wrong.

Roy agrees that he should not be the victim of his boss' mood, but he does not want to handle the matter alone. He asks one of his friends to discuss the situation with the boss.

17. In a small town people had to send a representative to a meeting. They thought of sending Jim. When they asked him whether he would be willing to go, he said, "I have no experience in matters like that. I am not sure in my mind whether I can do it. I need some time to think it over."

Question: What decision did Jim reach?

Jim thinks it is unfair to the people he has to represent if he has too limited experience. He suggests that they send someone else instead.

Jim could do one of many things. He is hesitant at first and probably is a very indecisive person.

Jim feels he is in no position to reject the town. He therefore takes a chance at going but makes it clear to everyone that he has never done this before and might not be successful.

Jim declines the offer because he feels only an experienced person should go. However the thought of going attracted him very much. Perhaps next time he will try.

Jim realizes that he gets an excellent chance to build himself a position and he accepts the appointment, is successful, and becomes the hero of the town.

18. Nat wanted to get married and live in his own place. But he did not have much money and had to postpone his plans. He worked hard saving up week after week to get enough money for down payments. He could have easily asked his parents to help him out, but he hesitated to do that.

Question: What will Nat eventually do to get married, sooner?

Actually Nat can maintain several points of view. Depending on his parents' financial background or their personality, or that of his bride, there are several things he might do.

He accepts the help of his parents but makes arrangements to repay the money he needs to get under way.

Nat prefers to work his own way. If that takes too long, he will get a loan, knowing that his parents will back him up in an emergency.

By no means would Nat take money from his parents. Both he and his bride are too proud and would rather work until they have all the money they need to get married.

Since Nat's parents can afford to help him, Nat thinks it is foolish not to accept their offer and get a good start in life. Not doing so would be to have false scruples.

Weights For Choices on Each of  
Eighteen Items on the Predicament Story Test

Story #	1	2	3	4	5	6
	+2	-2	0	+1	-1	+2
	-2	0	+1	-1	+2	-2
	0	+1	-1	+2	-2	0
	-1	-1	+2	-2	0	+1
	+1	+2	-2	0	+1	-1
Story #	7	8	9	10	11	12
	-2	0	+1	-1	+2	-2
	0	+1	-1	+2	-2	0
	+1	-1	-2	-2	+1	+1
	-1	+2	+2	0	-1	-1
	+2	-2	0	+1	0	+2
Story #	13	14	15	16	17	18
	0	+1	-1	+2	-2	0
	+1	-1	+2	-2	0	+1
	-1	+2	-2	0	+1	-1
	+2	-2	0	+1	-1	+2
	-2	0	+1	-1	+2	-2

## TEST DESCRIPTION

The Predicament Story Test, referred to as PST, is a multiple-choice story-completion test designed to measure dependency factors and to identify the conflict status of an individual in regard to dependency. The PST consists of eighteen stimulus stories. Each story concerns a person who finds himself in a predicament situation. The subject is offered a choice from among five courses of action leading to a solution of the predicament. Each possible choice reflects a different degree of dependent or independent behavior. The outcomes proposed range from extreme independent solutions to moderately independent, ambivalent, moderately dependent, and extreme dependent solutions. In making his choice, a subject reveals his unconscious motivations and conflicts.

The predicament situations in the stories were not chosen at random, but were based on the definition of dependency and selected for their relevancy to one of the three behavioral areas in which conflicts over dependency can best be observed: parent-child interaction, relation to authority, and activity orientation. The eighteen stories fall into three groups, each of which contains six stories relating to one of the three behavioral areas.

The design of the PST is shown by the following sample stories, chosen from each of the three behavioral

areas: parent-child interaction, relationship to authority, and activity orientation.

Example A: Parent-child Interaction

Story #3 Bill lives with his family. He heard about a job out of town and is curious what it is like. On the other hand, he likes the idea of staying with his folks and working right in town.

Question: What is Bill going to do?

Choice #1: Bill is the enterprising type who goes out at once, takes the job, and moves out of the home.

Choice #2: He will go out and take a look at the job. Bill will take it if he thinks he is making a good deal.

Choice #3: Bill can actually do one of several things. If he wants a job he will look for one, but if he does not he will stay where he is.

Choice #4: Since he is satisfied with his present set up, he will consider a change only if a good opportunity offers itself to him.

Choice #5: Since Bill likes the idea of working in town, he probably will not bother looking for a new job.

Choice #1 exemplifies the extreme independent position.

The hero of the story, Bill, is said to solve his predicament through an active, direct approach without considering alternative solutions. By implication Bill is described as an enterprising, self-reliant and resourceful person who is anxious to cut his ties with his family and have a job away from home.

Choice #2 illustrates a moderately independent attitude toward a resolution of his predicament. An element of independence appears in Bill's decision to go out and investigate

the job, i.e. a move away from the family is within the realm of possibility. However, some dependent thinking is expressed in the stipulation to move only if the job offer is most satisfactory.

Choice #3 indicates a position of ambivalence and vacillation. Bill considers several alternatives, but he remains indecisive since the alternatives appear equally attractive.

Choice #4 is similar to choice #2 in that the solution reflects moderation rather than an extreme, yet the emphasis falls on dependency more than on independence. This choice, therefore, illustrates a moderately dependent outlook. The major interest is in staying with parents and moving away from them only if an exceptionally good opportunity is available. Apparently dependency wishes are stronger than the desire for an independent existence away from home.

Choice #5 indicates a solution to the predicament through a clear choice of extreme dependent action. Bill is said to like the idea of working in town, which by implication means he has no intention of moving away from his parents. This choice contains no clues expressive of wishes in the direction of independence.

#### Example B: Relation to Authority

Story #4 Milt has just finished engineering school and is on his job. One of his first assignments is very difficult. He is not sure whether to consult his boss or give it a try all by himself.

Question: How does Milt handle his problem?

- Choice #1: Milt has confidence in his ability and feels he should try by himself. He does not want his boss to consider him incapable of handling his job.
- Choice #2: Milt decides first to give it a try alone and then to go to his boss should it become necessary.
- Choice #3: What Milt will do will depend entirely on the given situation. He has to consider his abilities as well as his position and his relationship with his boss.
- Choice #4: He consults with someone who has experience. Perhaps he will find out that he can do the assignment all by himself.
- Choice #5: He is anxious not to make any mistakes. Being new at the job, he decides to consult his boss.

Choice #1 indicates the extreme independent solution through the expression of self-confidence and the desire for autonomous action. No thought is given to secure any help in the depicted situation.

Choice #2 reflects a moderately independent attitude through reasonable self-reliance. Independent action is contemplated first, but in case of difficulties on the job, the aid of authority is solicited.

Choice #3 does not indicate any course of action. An ambivalent position prevents any decision in either the dependent or independent direction.

Choice #4 reflects some independent element in that Milt might find out that he can function autonomously after he has accepted help from an authority figure, yet, in essence, a moderately dependent solution is sought.

Choice #5 highlights the extreme dependent position with a passive-submissive orientation toward authority.

Example C: Activity Orientation

Story #5 Ted got into a discussion of how people should settle their affairs. He heard some say that everyone should try to work out things his own way. Others replied that it is foolish to try to prove that you can do things all by yourself.

Question: What position does Ted take in the discussion?

- Choice #1: Ted thinks he has very good judgment and can stand on his own feet. Therefore, he takes the position that he can settle his own affairs.
- Choice #2: Ted feels that one should try to work out things by oneself as much as one can without hesitating to ask for help if necessary.
- Choice #3: He takes the stand that no rules can be made about how people should settle their affairs. Not everyone can make use of help, even though there are people who are qualified to give advice.
- Choice #4: Ted believes that it is always a good policy to get the advice of others but there are situations which everyone can handle himself.
- Choice #5: Ted feels there is always a touch of doubts as to the right and wrong in the things we are doing so that it is always wise to make use of the help of others.

## SCORING METHOD

The choice of one solution to a predicament story indicates the degree to which the hero in the story is judged to experience a preference in solving the predicament situation. The intensity of dependency reactions were scored on a five point scale according to the subject's projection of his own preference for independent and dependent action. The weights on this five point scale were +2 +1 0 -1 -2. The plus direction was chosen for independent behavior and the minus direction for dependent action. The weights were assigned to each choice as follows:

Extreme Independence	+2
Moderate Independence	+1
Vacillation	0
Moderate Dependence	-1
Extreme Dependence	-2

Weights for choices on each of the eighteen stories on the PST are given in the Table following the test booklet.

## RATIONALE

The PST was developed because situational tests, questionnaire techniques, and standard projective techniques were felt not to yield useful results in isolating dependency.

Situational tests have been used successfully. Maccoby et. al.<sup>1</sup> controlled the need state of hostility through environmental manipulation. Williams<sup>2</sup> studied experimentally induced need states; he was not, however, content with his findings. Apparently, if motivational variables are subjected to laboratory controls, basic understanding of selective cognitive processes is hampered by the absence of a reality-bound experimental setting. The difficulty of exerting controls over the variable of conflict is also a crucial disadvantage in experimentally induced dependency needs.

According to our definition of dependency, a conflict-free person can choose a dependent or independent position, depending upon a given reality situation. The presence of a conflict over dependency is revealed in the consistency of a trend to choose extremes on the continuum dependence-

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<sup>1</sup>E. E. Maccoby, H. Levin, and B. M. Selye, "The Effects of Emotional Arousal on Retention of Aggressive and Non-Aggressive Movie Content," Am. Psychol., 1955, 10.

<sup>2</sup>M. Williams, "The Effects of Experimentally Induced Needs Upon Retention," J. Exp. Psychol., 1950, 40, 139-151.

independence when confronted with ambiguous situations. Several situational tests must be employed to determine this trend and rule out the possibility that essentially conflict-free subjects happen to choose a dependent position in the test situation under observation. In order to determine the absence or presence of conflict with more reliance, projective tests are used, thus further increasing the complexities of the design.

More direct approaches to the measurement of dependency, such as a questionnaire designed to tap what an individual thinks regarding his motivations, are known to yield unreliable results when the area of investigation involves needs, and conflicts. For instance, McClelland<sup>3</sup> found that self-rating on achievement drive strength does not correlate well with achievement scores obtained from stories written in response to perceptions of pictures. People are known to rationalize in matters of motivation and any direct method does not offer a good solution to the problem of measurement.

Methodological difficulties are commonly encountered. McClelland<sup>4</sup> felt that "contemporary psychological theory

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<sup>3</sup>D. C. McClelland, J. W. Atkinson, R. A. Clark, and E. L. Lowell, The Achievement Motive, Appleton-Century-Crofts, New York, 1953.

<sup>4</sup>D. C. McClelland, (ed.), Studies in Motivation, Appleton-Century-Crofts, New York, 1955, p. 401.

stresses the importance of motivation but provides no satisfactory method for measuring it." Some of his co-workers, Shipley and Veroff,<sup>5</sup> were interested in meeting this problem and have endeavored to, and were successful in, measuring motivational strength through the analysis of responses to imaginative tasks. They have studied specific motivational states and were so effective in confirming their predictions in such divergent behavioral areas as memory, learning, and performance, that their projective methods offered new possibilities to assess specific need states.

If the assumption can be made that fantasy production is sensitive to changes in need states, then a measurement of these changes will provide an indication of need conditions. Moreover, if the intricate relationship of inner drives, conflicts, etc., to the interplay of anxiety and needs and fantasy are controlled by way of manipulation of stimulus material according to certain principles, a controlled technique should be developed which specifically aims at isolating dependency conflicts. The same rationale has guided Blum<sup>6</sup> in constructing the Blacky Pictures on the

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<sup>5</sup>T. C. Shipley, Jr., and J. Veroff, "A Projective Measure of Need for Affiliation," J. Exp. Psychol., 1952, 43, 349-356.

<sup>6</sup>G. S. Blum, The Blacky Pictures: a Technique for the Exploration of Personality Dynamics, New York, Psychological Corporation, 1950.

basis of an analysis of life situations which psychoanalytic theory assumes to be of crucial importance in the psychosexual development of individuals.

## TEST CONSTRUCTION

The development of the PST passed through several stages before a final test format was achieved and before empirical findings allowed the derivation of operational definitions of both the conflicted and nonconflicted groups.

The principle guiding the construction of the PST was the assumption that a projection of need states occurs in the completion of stories in which the outcome of a given sequence of action remains ambiguous. The first effort in this direction was the construction of thirty stories. In fifteen of them a person was depicted as having basically independent personality characteristics and was confronted with a life situation in which independent or dependent behavior led to the solution of a predicament. In the other fifteen stories an essentially independent person was also facing situational difficulties demanding dependent or independent action. These stories were administered individually, and responses were recorded verbatim by the investigator. The results of these early experimentations were not satisfactory, as no significant correlation between clinical evidence for dependency conflict and test score patterns could be established. The interpretation of human situations by subjects was greatly influenced by the concreteness of the content of the stimulus material itself. In giving their answers, subjects tended to utilize clues provided by the

personality attributes of the hero of each story. The stimulus value had to be more neutral and unstructured so that a subject was truly forced to draw from his own resources of past experiences and present needs in offering a response. The completion of each story had to be made according to the free use of associational and ideational activity while on the other hand sufficient structure of the stimulus material was needed to keep associational responses within subtle limits. Consequently new stories were constructed which were considerably more ambiguous and which did not provide any clues as to the personality of the hero and the possible direction of his behavior in meeting a predicament situation. As considerable response variation was observed a systematic evaluation of the instrument was begun. At first the PST was administered orally to individuals in conjunction with a thorough psychodiagnostic evaluation by a clinic team at the Judge Baker Guidance Center and the Phillips Exeter Academy Clinic. In each clinical setting fifteen patients in late adolescence were studied, seven of which were females. At this stage of test construction many modifications of story content were made to achieve high agreement between score patterns on the PST and clinical judgments of dependency conflicts. Out of originally fifty stories, twenty-four were selected as having most discriminating power and were chosen for the final form of the test. However, six more stories were

eliminated because of the tendency of subjects to make a choice in these stories on the basis of socially desirable behavior.

It was further realized that the sexual status of the subject was a variable which had to be controlled. Female subjects tended to score readily in the direction of dependency acceptance and rarely chose a position of dependency denial. Because of this observation the sex variable was controlled by limiting the study to male subjects.

The possibility of group administration was explored by having subjects write in their completion of stories. Thirty Liberal Arts College students volunteered to participate in the development of the PST. Each of the eighteen stories had ample recording space available. The results were so encouraging that the test underwent another modification. The answers of these thirty male subjects had marked similarities within each choice category, and occasionally showed identical phrasing of their answer. On the basis of this tendency to complete the story in "typical" fashion, a multiple-choice test was developed by utilizing the responses given in this write-in version of the PST. A second group of thirty volunteer male students was then asked to take the new form. The results showed that the discriminating power of the instrument was preserved, and it was decided to choose as a final design a multiple-choice

arrangement with five choices to each of eighteen stories. After minimal modification of a grammatical and idiomatic nature, the PST was then administered to fifty male college freshmen at Boston University, all volunteers. Forty-two useful records were obtained, of which twenty-five scored nonconflicted while seventeen fell in the conflicted group. Among the latter group seven Accepters, five Deniers, and five Vacillators were identified. The data were used to derive expected frequencies of PST scores for each subgroup. These expected score patterns served as a basis for operationally defining Accepters, Deniers, Vacillators and Nonconflicted. Table IX gives the mean observed frequencies of the conflicted subgroups and their respective expected frequencies.

Table IX. Observed Frequency of occurrence of PST scores in three subgroups of Conflicted Subjects of Pilot Study and Derived Expected Frequencies of PST scores

Conflicted Group		N	Scores				
			+2	+1	0	-1	-2
Accepters	$f_o$	7	1.32	2.41	4.38	2.88	7.01
	$f_e$		1.20	2.40	3.60	4.80	6.00
Deniers	$f_o$	5	4.80	5.58	3.18	4.02	.42
	$f_e$		6.00	4.80	3.60	2.40	1.20
Vacillators	$f_o$	5	.40	3.57	10.05	3.22	.80
	$f_e$		1.00	4.00	8.00	4.00	1.00

Total Conflicted  
Subjects  
(Pilot Study)

17

## RELIABILITY AND VALIDITY

Two reliability checks were made. First the assignment of weights to the five choices to each story was tested for reliability through the use of judges, and second the intra-test reliability of the PST was established through the test-retest method.

In order to determine whether or not the principle of weight assignment used by the present writer has a reliable relationship to the formulation of multiple choices, three clinical psychologists were asked to assign weights independent of each other to each one of the five choices of all eighteen stories. A disagreement was tabulated whenever one rater assigned one weight which differed from that of another rater. Out of two hundred and seventy choices all three raters had to make, two hundred and sixty-four were made correctly. The percentage of agreement was highly significant with 99.5 per cent, accordingly the phrasing of multiple choices conforms to the principle of weight assignment.

A statistically reliable measure between test and retest data was sought in order to determine the reliability of the instrument itself and see how stable scores are after a relapse of time. Six months after the administration of the test to the final group of fifty male college freshmen, all forty-two subjects who yielded useful records were

contacted by the writer by mail and invited to participate once again in the development of a test which they had taken before. A compensation of \$2.00 was offered for the time they spent retaking the test. Out of these forty-two subjects, thirty-three showed up for the group administration of the PST. The remaining nine subjects were contacted by phone in an effort to assure their cooperation. Three more subjects agreed to retake the PST so that a total of thirty-six retest records were gathered.

The results of the reliability check are given in Table X. The problem at hand was to determine the extent to which the results of one set of observations (test) could be reproduced by the same technique (retest). The retest was a repetition of the original test in the same environment and under assumed comparable conditions. Only three subjects were seen separately in a different room and a different time than the majority of the group during retesting.

A matching test was employed to establish a measure of agreement between a number of identical classifications. The hypothesis underlying the procedure was the question whether or not the classification agreements are better than can be expected on the basis of random sampling.

The method to be used in this particular research

Table X. Calculation of z value for non-identical matches between test and retest classifications of thirty-six subjects according to conflict status.

	Classification				Total
	Accepters	Deniers	Vacillators	Nonconflicted	
$T_1$ (test)	5	5	3	23	36
$T_2$ (retest)	6	7	6	17	36
$T_1 + T_2$	11	12	9	40	72
$T_1 T_2$	30	35	18	391	174
$T_1 T_2 (T_1 + T_2)$	330	420	162	15640	16452

problem was suggested by F. Mosteller.<sup>7</sup> Following formula was employed in computing z.

$$\bar{m} = \frac{\sum T_1 T_2}{n}$$

$$\sigma^2 = \frac{1}{n^2(n-1)} \left[ (\sum T_1 T_2)^2 - n \left[ \sum T_1 T_2 \right. \right.$$

$$\left. \left. (T_1 T_2 (T_1 + T_2) + n^2 \sum T_1 T_2) \right] \right]$$

There were twenty-five correct matches which allows the computation of a z value of 5.53. Using a five per cent level of significance with a normal table value of 1.65 for a five per cent one-tail test, the hypothesis of chance matching is rejected. This finding provides evidence that the Predicament-Story-Test measures stable individual differences over a period of time.

Besides a measure of stability, a measure of validity was sought. Using an instrument like the PST, developed on the basis of a logical and empirical approach to the measurement problem at hand, inevitably brings up the question of how much confidence can be placed in the test performance and in a resulting classification according to dependency

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<sup>7</sup>F. Mosteller, and R. R. Bush, "Selective Quantitative Techniques" in G. Lindzey, (Ed.), Handbook of Social Psychology, Vol. 1, Addison-Wesley Mass., 1954, pp. 289-334.

conflict status. Validity information was obtained to establish a correlation between test scores and external criteria of conflict over dependency. Since the PST is a controlled projective technique and is used in making diagnostic classifications, a measure of concurrent validity appeared the best means of estimating the degree to which an individual's present motivational state is reflected in some measurable variable external to the test. The method of classification through clinical judges was employed.

The validity study was carried out with the aid of the Boston University Counseling Service. Thirty subjects took the test, matched with the experimental group on the basis of age and educational background. All subjects had been tested and diagnostically evaluated by the clinical staff of the Counseling Service. Two judges, both senior counseling psychologists received from the writer definitions of the four categories used in the current investigation: Accepters, Deniers, Vacillators, and Nonconflicted. The judges were requested to place the thirty individuals in these categories using the provided definitions and their understanding of the personality of each subject gained from the psychological study at the Counseling Center, a study which involved projective techniques, vocational testing, and several interviews.

Of these thirty subjects, twenty-five yielded useful records. In eighteen cases the judgments and the test

protocols coincided. Again, Mosteller's matching test was used to establish the measure of agreement between the number of identical classifications. The data for the calculation of  $z$  are given in Table XI.

The hypothesis was tested that the classification agreement can be expected only on the basis of random sampling. This hypothesis of independence must be rejected as a  $z$  value, calculated by using the same formula as in the reliability study, of 2.88 was obtained. Using a five per cent level of significance with a normal table value of 1.65 for a one-tail test, the hypothesis of chance matching cannot be accepted. It is therefore concluded that the results of the Predicament Story Test can be reproduced by clinical judges so that a classification of subjects on the basis of scoring patterns on the PST correlates to some external criteria.

Table XI. Calculation of z value for non-identical matches between test and judgment classification of twenty-five subjects according to conflict status.

Classification

	Accepters	Deniers	Vacillators	Nonconflicted	Total
$T_1$ (test)	10	7	5	3	25
$J_2$ (judgments)	8	6	8	3	25
$T_1 + J_2$	18	13	13	6	50
$T_1 J_2$	80	42	40	9	171
$T_1 J_2 (T_1 + J_2)$	1440	546	520	63	2569

APPENDIX B:

DETAILED SCORING CRITERIA FOR EACH  
UNIT IDEA OF TWO STIMULUS STORIES

DETAILED SCORING CRITERIA FOR EACH  
UNIT IDEA OF TWO STIMULUS STORIES

I. Criteria for Neutral Story

Unit: John loves to go to the movies

2 points: John wants (or likes) to go to the movies  
Joe (score 2 only if name is used consistently) loves to go to the movies

1 point: John loves good movies  
John likes to see a show  
John (or Joe) just likes to see movies

Unit: He is happy and excited

2 points: He is excited and happy  
He gets excited and happy

1 point: He has an excited time  
He has fun and is happy  
He is very happy when he goes

Unit: Whenever he goes to a show

2 points: When he goes to a (the) show  
Everytime he goes to a (or the) show  
Whenever he does go to a show

1 point: As he is going to a show (or movies)  
Whenever he has a chance to go  
Everytime he goes to see one  
Whenever there is a new movie he goes  
Whenever he can see a new show (or movie)

Unit: He met Bill and asked

2 points: He met his friend Bill and asked  
He ran into Bill and said  
John met his schoolmate Bill and asked

1 point: On his way he met his friend Bill and told  
him  
One day he met a schoolmate  
He met Bill, a friend of his, saying

Unit: Want to see the new show

- 2 points: Want to see a show  
 Bill, do you want to see the new show  
 Want to go to the new show
- 1 point: If he would like to go to the movies  
 Want to go and see what is new in the movies  
 Do you want to go along with me to see a show  
 How about seeing a new show (or movie)  
 If he would like to come along to the movies

Unit: Bill came along

- 2 points: Bill went along  
 Bill agreed and came along
- 1 point: He joined him  
 John and Bill went off to the show  
 Bill agreed and they headed for the movies  
 "All right" said Bill, "I'll go with you"  
 Bill answered, "I come along."  
 Bill joined and both went to the show  
 Bill said, "Yes, I would like to come along."

Unit: As they entered the theater

- 2 points: As they entered the show (or movies)  
 As they went into the theater
- 1 point: When they got into the movies  
 As John and Bill walked into the movies  
 Once they were in the theater  
 When they arrived at the show (or movies)  
 Just upon reaching the theater

Unit: They met their schoolmate Fred

- 2 points: They met their friend Fred  
 They met their classmate Fred
- 1 point: They met another friend  
 When they met a classmate  
 They both met Fred  
 They met another boy named Fred  
 They also saw Fred

Unit: And asked him to join them

2 points: And asked to join both of them  
And asked him to come along with them

1 point: And John asked him if he would like to  
come along  
And asked, "Do you want to come along  
with us?"  
They asked him if he wanted to go to the  
movies with them

Unit: Fred answered, "Surely, why not"

2 points: Fred said, "Sure why not"  
Fred replied, "Surely, why not"  
"Sure" Fred said (or answered), "why not."

1 point: He said, "Sure, I have nothing else to do."  
And he consented to come along, too  
He said, if you want me to, I will  
Fred said that he would like to come along  
"Sure, I do," Fred told them

Unit: It is fun having company

2 points: It's fun to have company  
It is wonderful having company  
It's nice to have company

1 point: I would like to have some company (or  
friends)  
It is fun to go out with friends  
I like to watch a movie with friends  
It is fun to go to the movies with you  
I enjoy company  
It is always nice to be with someone

Unit: All of them had a good time

2 points: They all had a good time  
And all had a good time

1 point: They all enjoyed themselves  
All three went off having a good time  
All went along and really enjoyed themselves  
So, they all went in and had a heck of a  
time  
They all had a fine time at the movies

## II. Criteria for Dependent Story

### Unit: Joe cannot leave his mother

2 points: Joe cannot leave his mother behind  
 Joe can never leave his mother  
 Joe cannot bear to leave his mother

1 point: Joe misses his mother whenever she leaves  
 Joe cannot stand to be without his mother  
 Joe misses his mother when she leaves him  
 alone

### Unit: He whines and cries

2 points: He often whines and cries  
 He whines and cries for her

1 point: He cries incessantly  
 He cries whenever he is left by her  
 He cries and weeps and carries on

### Unit: Whenever she is out of the house

2 points: Whenever she goes out of the house  
 Whenever she is out of the house for a  
 while

1 point: When she is away from the house  
 Each time she is out of the house  
 When she is out shopping  
 Whenever she leaves him alone in the house

### Unit: Joe misses her and says

2 points: He is missing her and said  
 Joe is missing mother and says

1 point: He misses her very much  
 Joe is lonely and says  
 Joe says

### Unit: I need my mother

2 points: I want my mother  
 I need you mother

1 point: I can't stand to be without my mother  
 I love my mother and miss her  
 I want her badly

Unit: I cannot be without her

2 points: I cannot do without her  
I cannot be without you  
I cannot live without her

1 point: I cannot bear to be without her  
I cannot get along without my mother  
He simply cannot be without his mother  
I must always be with you, mother

Unit: After she returns home

2 points: When she returns home  
After mother returns home  
After she comes home  
When she returns back home

1 point: When his mother finally comes back  
When mother comes home again  
Upon her return  
When she gets back

Unit: He puts his head into her lap

2 points: He runs and puts his head into her lap  
He cuddles his head into her lap  
He places his head on her lap

1 point: He runs over to her and puts his head  
against her  
He huddles his head into mother's lap  
By putting his head in mother's lap  
He buries his head deeply into mother's  
lap and cried

Unit: And beg her never to leave him again

2 points: And tells her never to leave him again  
And begs her never to leave him alone  
And asked her never to go away again

1 point: And goes to her and asked her never to  
leave any more  
He tells her, "I don't want you ever to  
leave me again."  
And cries for her to stay always with him  
And makes her promise never to leave him  
again  
And begs her that she should not leave him  
ever again

Unit: Mother comforts Joe and says

- 2 points: She comforts Joe and says  
 Mother comforts Joe and says to him  
 She comforts Joe and she says
- 1 point: She comforts her son and tells him  
 She says to him quietly  
 Mother tells Joe not to worry and says  
 Mother pets his head and says  
 And comforting her boy she says  
 She then comforts him by saying  
 Mother comforts him and lets him know

Unit: My little boy

- 2 points: My little Joe  
 My dear boy  
 My little fellow
- 1 point: My poor darling  
 All right my poor fellow  
 Yes, Joe, I know  
 My son

Unit: I know it is hard to grow up

- 2 points: I know how hard it is to grow up
- 1 point: I think I know that it is not easy to grow  
 up  
 It is very hard to become a man  
 I know Joe because it is very hard to grow  
 up  
 It is hard but is part of growing up

APPENDIX C:

RECALL SCORES OF ALL SUBJECTS

## RECALL SCORES OF ALL SUBJECTS

## CONFLICTED GROUP

Group	Story	Subject	Neutral	Story	Dependent
Deniers		1	14		11
		2	16		12
		3	16		9
		4	17		10
		5	9		1
		6	15		9
		7	11		8
		8	11		9
		9	16		16
		10	13		13
		11	14		15
		12	8		11
	Total		<u>160</u>		<u>124</u>
Vacillators		1	6		7
		2	16		10
		3	20		16
		4	14		8
		5	13		7
		6	16		11
	Total		<u>85</u>		<u>59</u>
Accepters		1	12		10
		2	17		12
		3	13		9
		4	7		13
		5	12		8
		6	6		14
		7	13		6
		8	14		9
		9	17		11
		10	11		15
		11	12		16
	Total		<u>134</u>		<u>123</u>
Grand Total					
Conflicted Group			379		306
				685	

## RECALL SCORES OF ALL SUBJECTS

## NONCONFLICTED GROUP

Subject	Story		Subject	Story	
	Neutral	Dependent		Neutral	Dependent
1	14	12	23	12	12
2	12	11	24	14	13
3	11	14	25	7	11
4	12	10	26	13	14
5	15	17	27	10	9
6	20	16	28	8	10
7	16	11	29	7	15
8	14	12	30	9	8
9	11	11	31	12	15
10	11	12	32	14	12
11	19	16	33	12	13
12	11	12	34	8	9
13	11	12	35	9	4
14	12	14	36	7	10
15	15	21	37	15	18
16	8	6	38	15	14
17	10	8	39	13	14
18	9	10	40	9	9
19	15	11	41	11	10
20	17	13	42	10	12
21	16	20	43	18	13
22	10	14			

	Neutral	Story Dependent
Total	522	528
Grand Total Nonconflicted Group	1050	

APPENDIX D:

ANALYSIS OF VARIANCE OF RECALL SCORES FOR TWO SUBJECT  
GROUPS ON DEPENDENT AND NEUTRAL STIMULUS MATERIAL

ANALYSIS OF VARIANCE OF RECALL SCORES FOR TWO SUBJECT GROUPS  
ON NEUTRAL AND DEPENDENT STIMULUS MATERIAL

Source of Variation	Sum of Squares	d.f.	Mean Squares	F
Between Conflict-Status (Conflicted and Nonconflicted Groups)	6.84	1	6.84	.32
Between Subjects in Same Group	1126.66	70	16.09	
Total Between Subjects	1133.50	71		
Between Stories (Neutral and Dependent)	31.17	1	31.17	4.82
Interaction: Stories by Conflict- Status	60.09	1	60.09	9.29
Interaction: Pooled Subjects by Stories	453.24	70	6.47	
Total Within Subjects	<u>544.50</u>	<u>72</u>		
Total	1678.00	143		

APPENDIX E:

ANALYSIS OF VARIANCE OF RECALL SCORES FOR THREE CONFLICTED  
SUBGROUPS ON DEPENDENT AND NEUTRAL STIMULUS MATERIAL

ANALYSIS OF VARIANCE OF RECALL SCORES FOR THREE CONFLICTED  
SUBGROUPS ON DEPENDENT AND NEUTRAL STIMULUS MATERIAL

Source of Variation	Sum of Squares	d.f.	Mean Squares	F
Between Subgroups (Accepters, Deniers, and Vacillators)	.81	2	.40	.03
Between Subjects in Same Group	359.11	26	13.81	
Total Between Subjects	359.92	28		
Between Stories (Dependent and Neutral)	91.84	1	91.84	7.66
Interaction: Stories by Subgroups	7.30	3	2.63	.22
Interaction: Pooled Subjects by Stories	299.86	25	11.99	
Total Within Subjects	<u>399.00</u>	<u>29</u>		
Total	758.92	57		

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DEPENDENCY FACTORS IN RELATION TO RECALL  
OF DEPENDENCY MATERIAL

Abstract of a Dissertation

Submitted in partial fulfillment of  
the requirements for the degree of  
Doctor of Philosophy

BOSTON UNIVERSITY GRADUATE SCHOOL

by

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1959

## ABSTRACT

This study is an investigation of the relationship between the motivational state of dependency and the recall of dependency material. Recent research has shown increasing interest in need states of individuals and in establishing relationships between need-related stimuli and cognitive behavior. Work by Williams, Wolf, Maccoby, Cohen and Gofstein suggests that facilitation of learning occurs if there is a congruence between a person's motivational state and the cognitive task he is asked to perform. Inhibition of learning can be observed if the need state interacts with inconsonant stimulus material. A systematic investigation of specific need states is still lagging. Studies have examined the drive state of hostility, oral needs, and achievement motives. An implication of their findings is that the relationship between stimulus material and motivation is not confined to the few isolated need states studied but has general validity in the area of learning and motivation. Since relatively little is known about the consistency of the cognition-motivation interdependence, this study attempts to determine whether or not similar expectations can be maintained regarding the motivational state of dependency.

Dependency needs are defined in terms of hypothetical events within the individual which can be inferred to be present on the basis of overt behavior patterns. A

developmental and dynamic point of view is chosen in elaborating "dependency" as being a basic need universally found in human beings and having universally an important role in the process of maturation and socialization of the individuals. It is proposed that dependency needs are a significant motivational component in human behavior revealed in overt attempts to gain support and protection. Biologically predetermined, they are learned tendencies to be insecure, deprived, and anxious in the absence of support and protection. Any stimulus situation signifying such a lack can be said to build up a potential, or can acquire a potential through learning, for an arousal of the motivational state of dependency. This learned tendency then functions in mobilizing behavior patterns in pursuit of these goals.

On the basis of theoretical considerations concerning the concept of dependency and on the basis of assumptions derived from related experimental studies, the following general hypothesis is formulated:

**General Hypothesis:** Response variation in the performance of a cognitive task can be systematically related to the conflict status of a specific need. Need-related stimulus material interacting with a nonconflicted motivational state has a facilitating effect, while the same

stimulus material interacting with a conflicted motivational state will show inhibiting effects.

Assuming that the general hypothesis holds true and assuming further that the conflict status of individuals can be experimentally controlled, the following specific hypotheses were derived from theoretical relationships which appear to exist between dependency needs, conflict over dependency, dependency-laden stimuli, and cognitive efficiency:

Hypothesis 1: Recall efficiency of dependency-conflicted subjects will be detrimentally affected in the recall of stimulus material with dependency-charged content.

Hypothesis 2: Recall efficiency of nonconflicted subjects will not be affected in the recall of stimulus material with dependency-charged content.

Hypothesis 3: In the recall of neutral stimulus material the recall efficiency of conflicted subjects will not differ from that of nonconflicted subjects.

The method chosen to investigate the hypothesized relationships utilizes the recall of prose passages. Two stimulus stories were designed, one having dependency-laden

content, the other having neutral themes. Each story consisted of sixty-five words grouped into twelve thought units.

The grouping of the subjects was done by means of a multiple-choice story-completion technique. The choices were arranged in five intervals ranging from extreme independent solutions to a predicament situation to extreme dependent ones. Each subject was assigned to either the conflicted or the nonconflicted group on the basis of scoring patterns which were empirically derived from pilot work. Conflicted subjects fell into three subgroups, called Dependency-Acceptors, Dependency-Deniers, and Vacillators, according to the emphasis in their scoring pattern. Deniers heavily favored independent choices on the test, Acceptors preferred dependent choices, and Vacillators selected ambivalent choices more often than dependent or independent ones.

Seventy-two subjects were included in the study. They were all male students at the Boston University College of Industrial Technology. Of these, forty-three were classified as nonconflicted, and twenty-nine as belonging into the conflicted group. There were no significant differences in age or intelligence. Subjects were seen in one session in which they were first given the story-completion test. After collection of all test protocols the neutral stimulus story was read. A measure of immediate recall was taken

following the instruction to write down the story as verbatim as possible. Upon completion of this task, the same procedure was used in presenting the dependent stimulus story. Recall data were scored according to scoring criteria which allowed the assignment of weights to each recalled thought unit, depending upon accuracy of recall.

For the conflicted group the mean recall scores on the neutral and dependency stories were 13.07 and 10.55 respectively. For the nonconflicted group the mean recall scores on the same stimulus material were 12.13 and 12.32 respectively. An analysis of variance technique was employed to test the statistical null hypothesis that the difference between the mean recall scores of the two major groups on the dependent story will be equal to the corresponding difference on the neutral story. The alternate hypothesis was supported because the statistical null hypothesis had to be rejected at less than the .01 level of significance. It was inferred that the difference is not attributable to deviations due to random sampling from a common population. Thus, the first two hypotheses were supported by the findings. The differences in mean recall scores of neutral stimulus material were examined by means of a  $t$  test. The resulting  $t$  value was not significant on the .01 level so that no reasonable doubts can be maintained about the null hypothesis. It is concluded that there is no real difference between conflicted and nonconflicted subjects

in the recall of neutral stimulus material.

An additional analysis was made to examine the nature of the differences among the means of the three conflicted subgroups. An analysis of variance allowed the inference that the mean recall scores of Accepters, Deniers and Vacillators on the dependent story was not equal to the difference on the neutral story. There was significant inhibition in these subgroups in the recall of dependency material.

The main conclusions drawn concerning the difference of mean recall scores in the conflicted and nonconflicted groups were: there is evidence for believing that inhibition in cognitive efficiency occurs upon interaction of dependency-conflicted material with a corresponding conflictual motivational state, whereas no such inhibition occurs in the interaction of neutral material with either dependency-conflicted or nonconflicted motivational states.

The findings of the present study offer further evidence for believing that a certain general relationship exists between motivation and cognitive processes. It was suggested, however, that there is a need for further isolation of specific need states and other relevant variables before systematic assumptions can be made and before explanatory concepts can be developed which embrace parameters of the variety of motivational behavior. Other implications for further research are discussed, particularly the need for more refined quantifying techniques, more systematic

treatment of the concept of dependency and study of this concept in relation to the variables of sex and development. The relevance of dependency for the larger field of psychopathology was pointed out.



#### AUTOBIOGRAPHY

The author was born on October 18, 1922, in Krefeld, Germany, as the son of Hans and Margarethe Schwaab. Elementary school education was completed in Krefeld where he also received his secondary school education at the local Realgymnasium. In the spring of 1946 he entered the Paedagogische Academie in Bonn, Germany, from which he graduated with distinction in the fall of 1947. During his studies he was elected president of the student council.

He entered the United States in 1949, matriculating at Columbia University in New York in 1950 to work toward the B.S. degree which he received in 1952. In the fall of the same year he was accepted as a doctoral candidate for the Clinical Psychology Training Program at the Boston

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The author married Miss Doris Lingenberg of Paterson, New Jersey, in 1944. He makes his home in Arlington, Massachusetts, with his two children Margot, born in 1956, and Eric, born in 1957. He became a United States citizen in 1953.

He is employed as a clinical psychologist at the Judge Baker Guidance Center in Boston and is a Consultant in Clinical Psychology to The Phillips Exeter Academy, Exeter, New Hampshire, and to the Children's Aid Society in Manchester, New Hampshire. With Nicholas Verven and Robert A. Young he was co-author of a publication entitled "The Training of Counselors for a Treatment Camp," J. Soc. Issues, 1957, 13.