# DIRECTION OF VERBALLY EXPRESSED AGGRESSION AS A FUNCTION OF FRUSTRATION TOLERANCE LEVEL

by William A. Sutton

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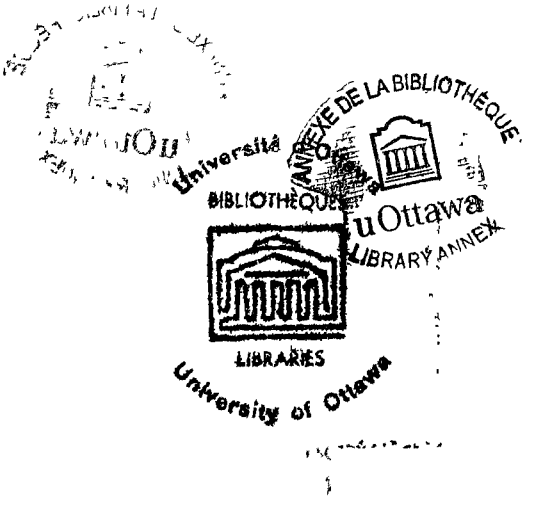


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## CURRICULUM STUDIORUM

William A. Sutton was born January 29, 1935, in Pontiac, Michigan. He attended Western Michigan University, Kalamazoo, Michigan, where he was graduated in June, 1957, with the degree of Bachelor of Science in Psychology. In May, 1963, he received the Master in Psychology from the School of Psychology and Education, of the University of Ottawa, Ottawa, Ontario. The title of his Interim Report was Forced Object-Choice and Personality Structure.

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# INTRODUCTION

As a general frame of reference in the study of personality, the theoretical importance of relative levels of stress tolerance has not infrequently caught the imagination of those with a decided bent toward experimentalism and theory building. So too, the more pragmatically orientated clinical psychologist often finds convenience in considering his clients or patients from the standpoint of their ability to tolerate stress in its many and varied forms. Whatever one's ultimate interest and posture in the science of psychology, however, the problem of searching and provisionally finding meaning in the construct of stress tolerance, and levels thereof, would seem to be a timely one.

Now, in tune with this general problem area, this writer has addressed himself to a particular quality or kind of stress, namely, frustration, and, in so doing, has attempted to give empirical meaning to the construct. However, this is but a portion of the larger problem of relating levels of frustration tolerance to measurable behavioral expression. Little empirical documentation has reflected an attempt to study behavioral expression in general, as it would appear to be a function of frustration tolerance. Moreover, the literature is void of investigations relating the nature of verbal expression as a consequence of frustration

tolerance. Thus, this thesis is specifically concerned with the nature of the subject's verbal reactions to experimentally induced frustration, as a function of the subject's previously measured level of tolerance for frustration.

Accordingly, chapter one attempts to develop this problem in a more elaborated form, calling upon certain theoretical notions pertinent to the building of a rational foundation for the thesis. At the same time, a review of relevant empirical evidence is offered which bears upon the problem at hand. The chapter closes with a reiteration of the problem and a presentation of two predictive statements suitable for experimental examination.

The method by which the experiment was executed is the essence of the second portion of the thesis. Included here are such germane topics as the measurement and stability of the independent variable, the structure and selection of the subjects for the study, and an operational definition of experimental frustration. The chapter closes with a discussion of the manner with which the dependent variable was quantified, and is followed by a restating of the research hypotheses in statistical form.

The final chapter is concerned with the results of the experiment and their interpretation. Also included here is a brief discussion of implications and suggestions for future research.

# CHAPTER I

## THE DEVELOPMENT OF THE PROBLEM

In this first chapter, the attempt will be made to present an exposition of the construct of frustration tolerance which is intended to offer the reader a theoretical basis for this study. Linked with this exposition will be pertinent research centered about the Picture-Frustration Study. To close the chapter, a delineated form of the problem will be presented, followed by an offering of specific research hypotheses.

### 1. Theoretical Considerations.

Once the exclusive domain of the biological sciences, the concept of organismic adaptation has become in recent times increasingly important in psychological theory. To a large extent, the major theoretical approaches to the understanding of human personality reflect this preoccupation with the manner in which the total individual modifies his mode of responding to meet the demands placed upon him by his environment.[1] In its most simplex framework, if the individual responds appropriately, i.e., in a manner beneficial

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1 Calvin S. Hall and Gardner Lindzey, Theories of Personality, New York, Wiley and Sons, 1958, p. 543-544.

to his general personality unity and integration, he is said to have adapted. In a like sense, when Man fails to respond appropriately, i.e., in a fashion resulting in a disorganization or disunity of his personality, he is said to have failed in the process of total organismic adaptation.

Now, within the areas of the biological sciences, this emphasis upon the adaptation of the total organism has received for sometime a position of prominence. Of the more current theoretical attitudes favorable to this point of view, Selye's General-Adaptation-Syndrome serves as a prime example.[2] In his theory, Selye emphasizes that the organism mobilizes its natural somatic defensive mechanisms in time of bodily stress as a means of warding off threatening stimuli and maintaining the biological integrity of the total person. In mathematical terms, there would conceptually exist a linear relationship between the intensity and duration of the stressor (any noxious stimuli) and the degree of defensive involvement of the organism.

Now, it becomes clear that Selye's concern here is with the adequateness or inadequateness of the defense system of the organism against stress in general. For him,

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2 Hans Selye, "The General-Adaptation-Syndrome in its Relationship to Neurology, Psychology, and Psychopathology", in Contributions Toward Medical Psychology, Arthur Weider (Ed.), New York, Ronald Press, 1953, Vol. 1, p. 234-274.

levels of organismic involvement are of theoretical as well as pragmatic import. The organism that is capable of defending itself against any mild stress will activate only the simplest anatomical structures, i.e., those concerned with cellular activity, as a means of maintaining its homeostatic balance. If the organism is incapable of maintaining its integrity at such a simple level, higher and more complex organ systems will be activated. This process of ever increasing organismic involvement continues until all structures and organ systems are called to defend against the noxious stimuli. Ultimately, this final stage of total organismic involvement occurs only when lower levels of adjustment have failed. If the total organismic effort fails completely, biological breakdown and death follow.

From a more psychobiological viewpoint, Rosenzweig considers this same concept of adaptation of the total person germane in his theory of frustration.[3] In this sense, the relationship between the two theoretical approaches are strikingly similar. For Rosenzweig, adaptation is operationally defined as the process by which both physical and psychological stress is appropriately reacted to; essentially "handled", as it were, in a fashion least damaging to that

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3 Saul Rosenzweig, "An Outline of Frustration Theory", in Personality and the Behavior Disorders, J. McV. Hunt (Ed.), New York, Ronald Press, 1944, Vol. 1, p. 379-388.

person. Countervise, when stress is inappropriately "managed", the person is said to be maladapted.

Of major concern for Rosenzweig is the reaction to situations which are characterized by a blockage of need gratification. In turning his attention to the need-reduction model of human behavior, he attempts to give concreteness to the unity of the organism. This essentially Gestalt view is reflected in his outlook of persons reacting to stress on three levels of defensiveness. Although some overlap is expected, the levels may be conceptually ordered in terms of organismic involvement.

Now, at the most basic and fundamental level one finds the cellular or immunological unit which is concerned with the protection of the body against infections from disease. This level is likened to Selye's Local-Adaptation-Syndrome.[4] Here, mild, and usually benign stimuli activate defensiveness proportionate to the stress involved. At a more comprehensively involved level, the autonomic or emergency organ systems are concerned with the defense of the total organism against gross bodily injuries. This level corresponds to Cannon's conception of emergency action of the sympatheticadrenal system in organismic survival.[5] And

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4 Hans Selye, The Stress of Life, New York, McGraw-Hill, 1956, p. 47.

5 Edward W. Dempsey, "Homeostasis", p. 209, in S.S. Stevens, Handbook of Experimental Psychology, New York, John Wiley & Sons, 1951, xii-1436 p.

finally, the most complex level is that of the cortical or ego-defense which guards the inviolacy of the personality from essentially psychological insults.

In keeping with Rosenzweig's psychobiological point of view, the activation of the first and second levels (cellular and autonomic) results in pain felt by the person. The pain is objective and can be readily localized. Fear, as an emotional tonality, is experienced as a result of activation of either the second or third levels (autonomic or cortical). And finally, anxiety (here defined as the anticipation of harm to the person) is the result of the third level (cortical) being activated. The three levels are but conceptually separated and are, in fact, ultimately interactive. Contemporary psychosomatic approaches to the study of traditionally conceived somatic disease illustrates this interactive emphasis stressed by Rosenzweig.[6]

Now, this arrangement of levels of defense not only reflects the unity of the organism, but also provides an orientation to the theory of disease which is both consistent with contemporary empirical knowledge as well as theoretical speculation regarding personality functioning. That is

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6 Stanley Cobb, "Symptoms: Genogenic, Histogenic, Chemogenic, Psychogenic", in Reflexes to Intelligence, Samuel J. Beck and H.B. Molish (Eds.), Glencoe, Illinois, Free Press, 1950, p. 124-134.

to say, Rosenzweig's theory would include not only phenomena of the most complex human nature, but would also embrace the more minute aspects of the individual's total functioning.

In terms of divisions, Rosenzweig further delineates his theoretical position into four parts, namely, (1) a definition of frustration, (2) types of stress which elicit frustration, (3) reactions to frustration, and (4) the concept of frustration tolerance. For purposes of this thesis, the latter two divisions of the theory will be treated in detail, as they relate specifically to the problem as it is specified at the closing of this chapter.

## A. Frustration Defined.

Frustration is defined by Rosenzweig as:

> (...) that state which occurs whenever the organism meets a more or less insurmountable obstacle or obstruction in its route to the satisfaction of any vital need.[7]

The stimulus-situation representing such an impediment may be termed as a stress, and the corresponding distress of the organism may be conceived as an augmentation of tension.

Although two kinds of frustration are admitted to, namely, primary and secondary, the latter receives the bulk of attention in the theory. The first is equated with a state of privation. In essense, it involves the existence

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7 Rosenzweig, On. Cit., p. 380.

of an active need and is characterized by tension and subjective dissatisfaction due to the absence of the end situation necessary for quiescence. Secondary frustration essentially embraces the characteristics of the first, but here the emphasis is centered upon superverient obstacles or obstructions in the path to the goal of the active need. For example, a hungry individual would experience secondary frustration if he were prevented from reaching his meal by the breakdown of his automobile or through being detained by an unexpected visitor.

As notable to the understanding of frustration, human needs should be here briefly considered. Although the theory fails to provide a distinctly clear classification of Man's needs, it does conceive of needs being ordered along a continuum. This continuum includes those needs concerned with (1) protection against loss or impairment of structures or functions; (2) needs dealing with the maintenance of the individual's growth level; (3) needs concerned with the reproduction of the organism and involving a certain degree of self-expansion; and (4) those in which such expansion is carried to creative as well as procreative activities and involves symbolic as well as concrete biological behavior.

In pointing out this continuation of Man's needs, a relationship becomes clear between the aforementioned levels of defense, i.e., cellular, autonomic and cortical,

to the first of these four groups of needs, i.e., protection against loss or impairment of structures or functions. In this respect, these defense needs have a special relationship to the concept of frustration.

B. Types of Stress.

The nature of the obstacle to need gratification provides a basis for dividing frustration situations into certain operationally convenient groups. Accordingly, an obstruction may be passive and, if so, represents impassibility without being itself threatening to the security of the individual. A locked door to a room containing food when the hungry individual has no key may serve as an example.

An obstruction may be active and, if so, not only has the impassible character of the passive obstruction, but is in addition dangerous in its own right. For example, a policeman who bars the way of a hungry and destitute man to an area containing food is an obstacle not merely by virtue of his bulk, but because of the weapons and authority he could bring to bear. In short, whereas passive obstructions entail only the need which is frustrated, active ones invoke additional needs pertaining to the immediate psychological security of the organism. In making this theoretical distinction, Rosenzweig points out that frustration includes situations both of dissatisfaction and of danger. And

because of this close relationship between danger and dissatisfaction -- and their essential identity in biological terms -- the concept of defense is again seen to be of central significance.

Now, not only may obstacles differ in respect to their relative passivity or activity, but also as to their being external or internal, i.e., they may be present either outside or within the individual. By a combination, four types of frustration result, namely, passive/internal, passive/external, active/internal, and active/external. This thesis is primarily concerned with active/external types of frustration and its effect upon the reactions of the individual subject.

C. Reactions to Frustration.

The primary distinction in reactions to frustration is fundamentally linked with the economy of the frustrated needs of the person. In taking this stance, the attempt is made to classify reactions according to the relative involvement of the person, i.e., whether a segmental need or the personality as a whole is considered. Now, reactions which correspond to the frustration of a segmental need are designated need-persistive, while those reactions which correspond to the frustration of the personality as a whole are classified as ego-defensive. In the latter case, the

obstacle is not only of an impassible character, but also is in addition dangerous in and by itself.

Now, the specific reaction to active obstacles to need gratification is highly germane to this thesis problem. Accordingly, the theory aims at the spelling-out of the specific reaction which may be subsumed under ego-defense responses to frustration. In each case, the specific reaction takes on a directional quality. Specifically, three directions may be noted as central to this discussion.

1. Extrapunitive responses are those which the individual aggressively attributes the frustration to external persons or things.[8]

In directing one's aggression toward the environment, the person fails to assume any personal responsibility for the experienced frustration. Accordingly, the associated emotional states which accompany this type of reaction are anger and resentment. Parenthetically, the corresponding psychoanalytic defense mechanism is assumed to be projection.

In a later publication, the author points out the conditions under which extrapunitive reactions may occur. Hence, this direction occurs whenever:

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8 Rosenzweig, Op. Cit., p. 383.

> Aggression is employed overtly and directly toward the personal or impersonal environment in the form of emphasizing the extent of the frustrating situation, blaming an outside agency for the frustration, or placing some other person under obligation to solve the problem at hand.[9]

The second direction of aggression is designated Intropunitive, and is thus defined:

> 2. Intropunitive responses are those in which the individual aggressively attributes the frustration to himself.[10]

This direction of reacting to frustration reflects an opposite trend from the Extrapunitive response. Here, perhaps as a consequence of the inhibition of the outward expression of the aggression, the emotional quality of the response is turned inward. Behaviorally, as well as dynamically, the person displays the associated emotional states of guilt and remorse. Likewise, Intropunitive responses may occur whenever:

> Aggression is employed overtly, but directed by the subject against himself in the form of martyrlike acceptance of the frustration as beneficial, acknowledgment of guilt or shame, or an assumption of responsibility for correcting the frustrating situation.[11]

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9 Saul Rosenzweig, "The Picture-Association Method and its Application in a Study of Reactions to Frustration", in Journal of Personality, Vol. 14, 1945, p. 3-23.

10 --------, "An Outline of Frustration Theory", Op. Cit., p. 383.

11 --------, "The Picture-Association Method and its Application in a Study of Reactions to Frustration", Op.Cit., p. 8.

And finally, the third direction in which aggression may find its path is that of the Impunitive reaction, which is thus defined:

> 3. Impunitive responses differ from both the extrapunitive and intropunitive in that aggression does not apparently supply the motivating force; more socially directed or 'erotic' drives are suggestive here.[12]

In this case, the attempt is made to avoid blame altogether, not by directing the aggression in either an outward or inward fashion, but by attempting to gloss over the frustrating situation as though with a conciliatory objective. Here, the corresponding psychoanalytic mechanism of ego defense is presumed to be that of repression. Nothing is said concerning the emotional tonality associated with this direction of aggressive response. However, it is implied that little or no affect is behaviorally displayed by the person reacting in this manner. Accordingly, this direction of aggression occurs whenever:

> Aggression (is) evaded or avoided in any overt form, and the frustrating situation is described as insignificant, as no one's fault, or as likely to be ameliorated by just waiting or conforming.[13]

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12 Rosenzweig, "An Outline of Frustration Theory", Op. Cit., p. 383.

13 --------, "The Picture-Association Method and its Application in a Study of Reactions to Frustration", Op. Cit., p. 8.

Now, in each of these cases, the direction of aggression may be better illustrated in the form of a paradigm. Thus, the person reacting in Extrapunitive fashion might say, "You are to blame (i.e., are responsible) for what has happened". Or, "Don't do that very annoying kind of thing again." Similarily, the person responding in an Intropunitive manner may assert, "I am to blame (i.e., responsible) for what has happened." And finally, the person reacting to the frustration in an Impunitive fashion may say, "No one (neither you nor I) is to blame (i.e., are responsible) for what has happened. Let's just forget it."

In describing the three directions of responding to frustration, the ego-defensiveness of the individual becomes apparent. In each case, the ego of the subject plays the chief role in the response, and the individual either blames someone (or something) else, assumes the blame, or describes the responsibility for the frustration as not attributable to anyone or anything.

Now, in terms of the development of behavioral expression, the triad of reactions would seem to be based upon genic endowment as well as formal and informal patterns of acquired experience. Regardless of the genesis of the particular direction taken, however, theoretical assumptions are made concerning the chronological expression of each reaction. Thus, Exprapunitive responses would seem to

appear earliest, the Intropunitive responses coming in consequence of the inhibition of the Extrapunitive, and both occurring earlier than the Impunitive reaction to frustration.

From a more dynamic point of view, one's relative ego strength is significant; the coming and passing of each expressional direction to frustration (with the exception of the final stage, i.e., Impunitive) is crucial. The entire process of the socialization of the child hinges critically upon each of the three stages. However, the developmental aspects of one's reaction to frustration is not the theme of this thesis. It has been considered here simply to emphasize and to lead into the topic in the next section.

D. Frustration Tolerance.

A chief postulate in Rosenzweig's theory is that all modes of response -- direct or indirect, adequate or inadequate -- are adjustive in aim. Inasmuch as this line of thought is derived from the biological model of adaptation of the organism to threatening stimuli, these modes of responding represent the best of which the organism is capable under the total existing conditions. He hypothesizes that, in each case, the organism is attempting to preserve its integrated functioning by the restoration of both physiological as well as psychological equilibrium. For him,

the relationship between the defense of the organism against disease and the defense of the person against psychological insult is more than a simple parallel. Thus, he writes:

> (...) the generalization regarding the tendency of the organism to keep the conditions of the internal physiological environment constant is relevant here and may be extended to the psychological field. Just as the body in its resistance to infectious disease adopts non-disruptive protective reactions as long as possible but eventually resorts to defense reactions which, as symptoms of the illness, seriously interfere with the patient's normal behavior; so when psychological constancy cannot be achieved in more adequate ways, less adequate ones are inevitably adopted.14

Returning for a moment to the concept of adequate or inadequate mode of responding, it is pointed out that only an approximate definition of one may be given. In point of fact, however, the differences in adequacy of reactions to frustration are basically extrensic and are reduced essentially to grades of efficiency. Notwithstanding this apparent equivocation, a theoretical attitude is taken which affords an intelligible distinction. Accordingly, reactions are adequate insofar as they represent progressive rather than retrogressive trends of the personality. Reactions which tend to bind the person to his past unduly or interfere with reactions in later situations because of such

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14 Rosenzweig, "An Outline of Frustration Theory", Op. Cit., p. 384.

binding are less adequate than those which leave the individual free to meet new situations as they arise.

Now, a concept which is material to this discussion is that of frustration tolerance. In theory, it is defined as "an individual's capacity to withstand frustration without failure of psychobiological adjustment", that is, without resorting to inadequate modes of response.[15]

In its broadest context, the concept is related to resistance in the biological sense, as illustrated by Selye's theory of adaptation seen at the beginning of this chapter. More psychologically, however, the concept is pertinent to the psychoanalytic distinction between the pleasure and reality principles postulated by Freud.[16] The former involves immediate gratification of every impulse and is characteristic of the very young infant and the narcissistic adult personality. In short, the pleasure principle is psychoanalytically considered to be in operation when inadequate ego-defense reactions are adopted since the latter are modes of protecting the personality from the unpleasantness connected with frustration.

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15 Rosenzweig, "An Outline of Frustration Theory", Op. Cit., p. 385.

16 Sigmund Freud, "Formulations Regarding the Two Principles in Mental Functioning", in Collected Papers, Ernest Jones (Ed.), New York, Basic Books, 1959, Vol. 4, p. 13-21.

On the other hand, capacity to delay gratification, as well as for inhibition, is implied by the notion of reality principle. And this is precisely the crucial point in Rosenzweig's theory where the construct important for this thesis becomes realized. The various directions of aggression open to the individual placed in a frustrating situation are linked to, and consistent with the delay or non-delay of impulse gratification. In essence, the individual who reacts to frustration with either an Extrapunitive or Intropunitive direction is displaying the overt expression of the pleasure principle. By reacting in either of these two directions the person is, in fact, displaying a lack of frustration tolerance. Under these circumstances of discharge, i.e., with the direction of the aggression either outward or inward, the satisfaction of the pleasure principle is inescapable. Conceptually then, the link may be bridged between the direction of aggression and the relative tolerance level of the individual in question. Thus, Rosenzweig points out the theoretical position from which the rationale for this study is taken.

> The capacity to delay gratification implies some type of inhibitory process. Since frustration is accompanied by an increase of tension while satisfaction results from a discharge of tension, an inhibition in question may consist in a capacity to sustain tension and to withstand discharge.[17]

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17 Rosenzweig, "An Outline of Frustration Theory", Op. Cit., p. 386.

Just as in its motivational application, frustration tolerance implies the capacity to delay gratification, so on the intellectual side it signifies some form of "delayed reaction". Abstract symbolic thought, as opposed to concrete thinking, could be considered as an example of such delayed reaction, i.e., the intellectual inhibition of discharge.

From the developmental standpoint, the child constantly displays the activity of the pleasure principle through his modes of reacting to frustration. He is hardly willing, indeed able, to subordinate the immediate gratification of his needs and impulses to the restraining influence of his ego structure. On a behavioral level, his reactions are consistent with the aforementioned scheme of things. He will overtly attack the environment or himself as a means of defending himself from the unpleasantness of the situation, thus reflecting his basic intolerance for frustration.

On the other hand, the individual who reacts to frustration in an impunitive fashion reflects his fundamental tolerance to withstand the unpleasantness of the situation which blocks need gratification. Here, the reality principle takes a superior position in the balance between the individual's surge for immediate gratification and the control of this gratification in favor of less adaptive modes of responding to frustration. Consistent with this line of

thought then, it may be abstracted from Rosenzweig's writings that a dichotomy conceptually exists between essentially two directions of responding. On the one hand, either the Extrapunitive or Intropunitive direction of expressed aggression reflects a lowered level of tolerance for stressful frustration. Counterwise, the Impunitive mode of responding to frustration reflects a heightened level of tolerance for this same frustration.

Up to this point, the writer has dealt with certain notions from essentially three theoretical areas, namely, physiology, psychoanalysis, and psychology. The major tenor of certain positions within these areas has been emphasized in terms of three primary postures common to all three approaches. These theoretical commonalities may be summarized in the following statements. (1) Functioning man is best seen in a holistic fashion, including the physical as well as the psychological side of his personality. (2) He is basically seen as an adaptive organism. (3) The process of adaptation occurs on levels of defensiveness, depending upon the degree of involvement of the organism.

Finally, Rosenzweig's Theory of Frustration was exposed as a means of arriving at an understanding of the notion of tolerance to frustration. In attending to this construct, it has been possible to delineate certain directions of responding which reflect the relative powers of

adaptation of the person as well as his relative degree of organismic involvement, i.e., the relative involvement of his levels of functioning. Explicit in the person's individualized direction of responding is his unique tolerance or intolerance for frustration.

2. Empirical Considerations.

Inasmuch as the theoretical notion understood to be pivotal to this thesis is Rosenzweig's idea of frustration tolerance, the review of experimentation will naturally fall upon the instrument designed to measure this tolerance.[18] Accordingly, for convenience sake, the following studies will be categorized in terms of relative experimental emphasis, including those investigations dealing essentially with validity, as well as reliability of the instrument.

A. Studies Concerned with Validity.

The various validation studies may be classified into two broad groups: (1) experimental studies, in which the real life experiences of frustration are emphasized; and (2) clinical studies, in which an outside criterion is established for determining validity. It should be

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18 Rosenzweig, "The Picture-Association Method and Its Application in a Study of Reactions to Frustration", Op. Cit., p. 3-24.

understood that these designations are to be taken in the broadest sense of the term, as they have been chosen for want of more suitable expressions.

a) Experimental Studies.- French[19] compared Picture Frustration Study (hereafter referred to as the P-F Study, or simply the Study) scores of good and poor students as shown three weeks before the examination and immediately after the examination. The results showed that poor students had an increase in Extrapunitive responses following the stress situation, i.e., the examination, which theoretically failed to have an equal stress value for the good students.

Franklin and Brozek[20] exposed a group of adults to semi-starvation for twenty-four weeks. The P-F Study was administered in the last week and after twelve weeks of nutritional rehabilitation. No significant differences were found between the two sets of protocols and, with this result, the authors questioned the validity of the instrument.

Forty male undergraduates from an introductory course in psychology provided the subjects for a study by

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19 Robert L. French, "Changes in Performance on the Rosenzweig Picture-Frustration Study Following Experimentally Induced Frustration", in Journal of Consulting Psychology, 1950, Vol. 14, p. 111-115.

20 Joseph O. Franklin and Joseph Brozek, "The Rosenzweig P-F Study as a Measure of Frustration Response in Semi-Starvation", in Journal of Consulting Psychology, 1949, Vol. 13, p. 293-301.

Lindzey.[21] The students were divided into high and low groups on the basis of the Allport-Kramer Attitudes Toward Minority Groups Scale. Following the administration of the P-F Study, each group was again divided, this time into ten experimental and ten control subjects individually matched on the basis of the Allport-Kramer Scale score and age. Following this final division of the sample, the students of the experimental group were first subjected to food deprivation for a period of ten to twelve hours. For three hours following this time interval without food, the subjects were required to retain from one pint to one quart of water before being allowed to urinate. Next, blood samples were taken, accompanied by painful wounding of the subject's arm one or more times. Both the food deprivation and blockage of the need to urinate, as well as the subjection of pain, served to reduce the subject's level of primary frustration tolerance.

At this time, each subject was required to perform a long and tedious psychomotor activity in the presence of his fellow students. Poor performance in this activity was assured by the inclusion of three confederates who succeeded in the task with no difficulty. The final stage of the

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21 Gardner Lindzey, "An Experimental Test of the Validity of the Rosenzweig Picture-Frustration Study", in Journal of Personality, 1950, Vol. 18, p. 315-320.

study involved the readministration of the P-F Study. Of significance here was the fact that Extrapunitive scores increased beyond chance expectancy from pre- to post-frustration testing.

Situational frustration was again the crucial aspect of a study by Lindzey and Goldwyn.[22] It was hypothesized that a significant relationship would exist between rating of overt behavior during the frustration situation, as well as during a post-frustration interview, and direction of Extrapunitive and Intropunitive aggressive reactions on the P-F Study. Seventeen male, undergraduate, college students were individually subjected to difficult mathematical problems to complete, although they were led to believe the problems to be relatively simple. Following this experience, the subjects were interviewed by a psychiatrist who explored the student's feelings concerning the experiment. Each subject was then rated on a five point scale, ranging from high Extrapunitive through high Intropunitive, by a clinical psychologist. The ratings were based upon tape recordings of the frustration situation as well as the interview with the psychiatrist.

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22 Gardner Lindzey and Robert M. Goldwyn, "Validity of the Rosenzweig Picture-Frustration Study", in Journal of Personality, 1954, Vol. 22, p. 519-547.

The results of the study fail to support the hypothesis. In fact, a correlation of -.07 was found to exist between the ratings and Extrapunitive and Intropunitive reactions on the P-F Study. In viewing the findings, this writer would point out that (1) the small number of subjects, (2) the possibility of error in the rating process, and (3) the specific nature of the frustration situation may have contributed to the experimental confounding which could have readily resulted in the reversal of the expected hypothesis.

Simons set out to discover the relationship existing between the P-F Study and certain independent criteria, one of which consisted of a stress situation designed to elicit frustration.[23] Thirty-three female and seventeen male inpatients from a university psychiatric service were selected to serve as subjects. Following the individual administration of the P-F Study, the subjects were subjected to the experimental stress situation consisting of a series of "psychological tests" designed to measure "personality". In this battery were a series of six subtests, each of which involved difficult, if not impossible, psychomotor tasks. In each "test", the subject was verbally punished by the experimenter with such statements as, "You didn't do too

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23 Irving Simons, "The Picture-Frustration Study in the Psychiatric Situation--Preliminary Findings", in Journal of Personality, 1950, Vol. 18, p. 327-330.

well, let's try another", or, "Most people would have finished the test by now". In every case, the subject was told he had failed the test.

Following the testing of each subject, the experimenter rated their behavior in the total stress situation in terms of the percentage of Extrapunitive, Intropunitive and Impunitive aggressive reactions displayed by each. The original hypothesis was supported in that a chi square technique of statistical analysis yielded a value of 12.91 ($P < .01$) between the stress situation and the P-F Study.

Pausing for a moment, a brief summary of those investigations cited above is in order. From this review, the following statements may be made. (1) Stress situations inducing frustration at a primary level of functioning produces significant increases in Extrapunitive reactions. The probability of obtaining such modification seems to be a function of several variables, namely, (a) a sufficiently large sample, (b) the degree of ego involvement of the subjects in the frustration task, and (c) the validity of the measurement of the subject's reactions to frustration; (2) Ratings by independent judges appear superior to other criteria of overt aggressive behavior in experimentally induced frustration; (4) Stress situations inducing frustration at a secondary level of functioning produces significant increases in Extrapunitive reactions.

b) Clinical Studies.- In this section, investigations will be reviewed which relate the P-F Study to some outside criteria, namely, matching the Study with behavioral measures, with other psychological tests, and with different groups on the P-F Study.

Rosenzweig experimentally demonstrated the relationship between the P-F Study and the TAT.[24] To do this, one hundred normals and fifty male and female psychiatric patients were administered the two instruments. Four judges reviewed each of the thirty-six hundred responses involved. The analysis admits to a significant correlation ($P < .01$) between the two instruments. The finding is thus interpreted as evidence for suggesting that the two tests are measuring aggressivity not unlike each does independently.

In a similar study by Holtzberg and Posner, forty-seven student nurses, between twenty and twenty-two years of age, were administered both the P-F Study and the TAT.[25] The latter instrument was designed to measure fantasy aggression, while Allport's Ascendance-Submission Reaction Study, a self

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24 Rosenzweig, "The Picture-Association Method and its Application in a Study of Reactions to Frustration", Op. Cit., p. 10.

25 Jules D. Holtzberg and Rita Posner, "The Relationship of Extrapunitiveness on the Rosenzweig Picture-Frustration Study to Aggression in Overt Behavior and Fantasy", in American Journal of Orthopsychiatry, 1951, Vol. 21, p. 767-779.

rating scale, and a sociometric instrument were designed to measure overt expression of aggression. The results indicate the P-F Study correlates highly ($P < .01$) with the TAT, but fails to statistically relate to the overt measures. The authors conclude that the Study does not measure overt expression of aggression but, in fact, measures fantasy aggression. They further point out that the Study is frequently seen as humorous and, inasmuch as humor is often a vehicle for the expression of aggression, the Study may facilitate this type of fantasy activity.

In an interesting study by Fisher and Hinds, the authors investigated the control of hostility in various personality types.[26] Seventy-one subjects, broken into twenty-six normals, twenty-five paranoid schizophrenics, and twenty schizophrenics who attempted suicide, were administered a battery of psychological tests designed to measure feelings of hostility ranging from those stemming from full conscious control of hostility through those measuring hostility feelings stemming from little or no conscious controls on the part of the subject. The specific instruments or tasks included the Wechsler-Bellevue Vocabulary Subtest, the Rorschach, a "Feeling Questionnaire", a subsection of

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26 Seymour Fisher and Edith Hinds, "The Organization of Hostility Controls in Various Personality Structures", in Genetic Psychology Monographs, 1951, Vol. 44, p. 3-68.

the Strong Vocational Interest Blank for Men, the P-F Study, a Picture-Adjective Test, a Word Association Test, the Terman-Miles Masculinity-Femininity Blots, and the TAT. The results pertinent to this thesis demonstrated that there was no correlation between overt aggression, as measured on the TAT, and Extrapunitive scores on the P-F Study. However, Extrapunitive scores did relate significantly ($P < .01$) with indirect aggression of the TAT. The authors offer an explanation for this finding by insisting that the two instruments measure divergent levels of personality structure.

Using scores on the MMPI as criteria of emotional adjustment, ninety-one college students were administered the P-F Study.[27] It was hypothesized that Extrapunitive and Intropunitive scores were associated with emotional maladjustment, while Impunitive scores were reflective of adequate emotional adjustment. The resulting correlation of the two measures tended to support this hypothesis. A majority of the Extrapunitive and Intropunitive scores were positively correlated with MMPI emotional maladjustment measures. On the other hand, a majority of the Impunitive scores were negatively correlated with the same MMPI scores. Interestingly enough, however, none of the correlations were

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27 Herbert Quay and Anders Sweetland, "The Relationship of the Rosenzweig P-F Study to the MMPI", in Journal of Clinical Psychology, 1954, Vol. 10, p. 296-297.

significant at the accepted level of confidence. Moreover, the Pa Scale of the MMPI correlated negatively with Extrapunitive and Intropunitive scores on the P-F Study. Accordingly, two possible interpretations may be given to this finding. It is first possible that the two tests were, in fact, measuring divergent levels or aspects of personality structure and functioning. Or, secondly, either one or both of the instruments were measuring the same aspect of personality, but inadequately.

Making use of Maslow's Security-Insecurity Inventory, Bennett and Jordan set forth two basic hypotheses for investigation.[28] First, subjects scoring high on the S-I would score high on the P-F Impunitive measures, as both instruments were felt to be a reflection of "inner conscious feelings" of security or insecurity in this respect. Secondly, those subjects scoring low on the S-I would likewise score high on either Extrapunitive or Intropunitive P-F measures. Following the administration of the two instruments to one hundred and nine college students, it was found that the low S-I group scores correlated with P-F Study Extrapunitive scores at the .05 level of confidence. On the

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28 Carson M. Bennett and Thomas F. Jordan, "Security-Insecurity and the Direction of Aggressive Responses to Frustration", in Journal of Clinical Psychology, 1958, Vol. 14, p. 186-187.

other hand, there was no significant correlation between high S-I scores and P-F Study Intropunitive scores. The high S-I group correlated at the .05 level of confidence with Impunitive scores, thus the second hypothesis was supported. Inasmuch as only the Extrapunitive scores were found to be significantly correlated with the Inventory, it was suggested that there may be a qualitative difference between the Extrapunitive and Intropunitive scores on the Study.

Lindzey and Goldwyn matched delinquents by age, sex, socioeconomic level, and intelligence with a group of non-delinquent control subjects.[29] It was hypothesized that the delinquent group would produce a higher frequency of Extrapunitive scores than would the non-delinquents. In fact, however, the delinquents showed a significantly ($P < .01$) lower frequency of Extrapunitive scores than did the controls. The reversal of the results from that which was expected is not unlike a finding by Sutton.[30] In the latter study, delinquent subjects chose a significantly greater number of non-aggressive items on a forced object-choice task than did the

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29 Lindzey and Goldwyn, Op. Cit., p. 519-547.

30 William A. Sutton, Forced-Object-Choice and Personality Structure, unpublished interim report presented to the School of Psychology and Education, University of Ottawa, 1963, viii-58 p.

non-delinquent control subjects. As in the Lindzey and Goldwyn study, the hypothesis was in the opposite direction. Sutton proposed reaction formation as a possible explanation for this finding.

In another study cited in the same article,[31] a heterogeneous group of twenty male college students were rated on the basis of three levels, namely, self-ratings of overt behavior (Level I); ratings of overt behavior by another, in this case, an "experienced clinician" (Level II); ratings gained from a variety of projective and objective psychometric data and judged by a twelve-member "diagnostic council" (Level III).

At any one level, the variable presumably being measured was a trait comparable to the Extrapunitive score on the P-F Study. In the case of Level III, Extrapunitive expressed as fantasy material was given additional weight as a means of balancing the more "reality bound" measures of the first two levels of behavior. The results indicate that Level I and Intropunitive and Extrapunitive scores correlated .28, which was insignificant at the accepted level of confidence. The correlation of Level II and Extrapunitive scores yielded a coefficient of .42, significant at the .01 level. And finally, the correlation of Level III with

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31 Lindzey and Goldwyn, Op. Cit., p. 519-547.

Extrapunitive scores produced a coefficient of -.17, thus failing to be significant at the accepted level of confidence.

Two further studies were cited by Lindzey and Goldwyn in the same journal article. In the first, a word association test was administered to twenty college students. From this test, an aggressive score was obtained. The students were then administered the P-F Study and a correlation coefficient was computed between Extrapunitive scores and scores on the word association test. Although a statistical relationship was expected, none was evident at the accepted level of confidence.

In the second study from the same article, it was hypothesized that high social status would correlate with low Extrapunitive as well as high Intropunitive and Impunitive scores on the P-F Study. The latter two scores were felt to be the more socially acceptable of the three possibilities. An examination of the results indicate that the hypothesis that high social status (as defined by a task given the subjects) is correlated with low Extrapunitive scores is supported. However, the second hypothesis that high social status is correlated with high Intropunitive and Impunitive is only partially supported; only the high Intropunitive is significantly related to high social status.

From the foregoing exposition of clinical studies primarily concerned with validity, several rather specific and restricted, yet significant statements may be ventured. (1) The P-F Study fails to significantly correlate with measures of overt aggression gained from a variety of projective and psychometric instruments, especially the Thematic Apperception Test and the Word Association Test. (2) The P-F significantly correlates with measures of fantasy or indirect aggression gained from the TAT. (3) The P-F fails to significantly correlate with certain self-rating instruments, either scales designed for a specific experimental procedure, or questionnaires of long and established experimental and clinical use, i.e., the MMPI. (4) The Study significantly correlates with measures of security-insecurity, as well as levels of social status. (5) The Study significantly correlates with ratings by others of overt aggression expressed by the subject, especially when these ratings are based upon observations of the subject's overt motor behavior.

B. Studies Concerned with Reliability.

In the main, studies concerned explicitly with the reliability of the P-F Study are somewhat lacking from the literature. However, those that are documented are presented in this section.

Taylor and Taylor investigated the reliability of the Group Conformity Rating (GCR) of the P-F Study.[32] One hundred and thirty male subjects were administered the Study. Through an analysis of variance technique, an F value of 27.32 ($P < .01$) was found for variance among the test items. The authors cite this as statistical evidence for the high internal consistency of the Study.

Approaching the reliability of the Study through the case study method, seven subjects were exhaustively studied.[33] A test-retest reliability coefficient of .45 was computed. Although not significant at the accepted level of confidence, the authors point out that an increase in sample size in all probability would have yielded the desired correlation.

Making use of one hundred and seventy-five male and female college students, the same author approached the problem of reliability of the P-F in a fashion similar to the study cited above.[34] Following computation, test-retest

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32 Mahlon V. Taylor and O.M. Taylor, "Internal Consistency of the Group Conformity Rating of the Rosenzweig Picture-Frustration Study", in Journal of Consulting Psychology, 1951, Vol. 15, p. 250-252.

33 Jack Bernard, "The Rosenzweig Picture-Frustration Study II, Interpretation", in Journal of Psychology, 1949, Vol. 28, p. 333-343.

34 ---------, "The Rosenzweig Picture-Frustration Study I. Norms, Reliability, and Statistical Evaluation", in Journal of Psychology, 1949, Vol. 28, p. 325-332.

item reliability of the study ranged from .25 through .90, with a mean reliability coefficient of .57. Although the range was great, more than fifty per cent of the coefficients were significant at the accepted level of confidence.

A final study is cited which sheds light upon scorer reliability. Clarke, et al.[35] found an eighty-five per cent agreement between two independent scorers with eighty Picture-Frustration protocols. The authors interpret this finding as demonstrating that the scoring factors involved lend themselves to consistent and objective application.

In summary, it may be briefly stated that studies concerned with reliability of the P-F Study show (1) high internal consistency reliability, (2) acceptable test-retest reliability, (3) poor reliability with the small case study method of approach, and (4) acceptable scorer reliability.

### 3. Specification of the Problem.

On a theoretical level, the observable reactions of an individual to frustration may be considered to be a reflection of his basic tolerence for such frustration. However, from reviewing the bulk of empirical investigations

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35 Helen J. Clarke, et al., "The Reliability of the Scoring of the Rosenzweig Picture-Frustration Study", in Journal of Clinical Psychology, 1947, Vol. 3, p. 364-370.

related to this area, it becomes clear that none of the studies have been concerned with the specific construct central to this thesis, namely, that of frustration tolerance. On the contrary, the representative approach has been characterized by an attempt to relate certain P-F factors with specific personality types, experimental tasks, or specific psychometric or projective instruments. In the main, the purpose behind this attempt at establishing relationships has been a pragmatic one, and in most cases, has neglected the relationships between a theory of frustration and subjects' overt reaction to frustration. This relationship may be stated in an even more basic and fundamental manner. Is there a relationship between subjects' responses on a test (in this case, the P-F Study) and their overt reactions in a real life situation?

Now, whether the overt expression of an individual to frustration is largely of a motor or verbal variety, Rosenzweig's position would seem to hold. In point of fact, the P-F Study is thought to measure real life frustration reactions. That is, the person would theoretically be expected to respond in keeping with his particular level of frustration tolerance. In specifying the problem treated in this thesis then, this writer is concerned with only the subject's verbal reactions to frustration as they would seem to be a function of his level of frustration tolerance.

Thus, in Rosenzweig's terms, an individual who verbally responds to frustration in either an Extrapunitive or Intropunitive direction is, in fact, demonstrating a lowered level of tolerance. On the other hand, the person who verbally responds to frustration in an Impunitive direction is reflecting a heightened level of tolerance. In terms of formal, experimental hypotheses, the following may be presented:

1. Subjects demonstrating low tolerance for frustration will verbally respond to experimental frustration in either an Extrapunitive or Intropunitive direction.

2. Subjects demonstrating high tolerance for frustration will verbally respond to experimental frustration in an Impunitive direction.

In developing the experimental problem of this thesis, the writer has attempted to expose certain theoretical relationships between frustration tolerance as a construct, and the direction of manifested aggression as a reaction to frustration. In doing so, certain theoretical writings of Rosenzweig and others, as well as empirical investigations of the Picture-Frustration Study were made accessible to the reader. The discussion of these relationships culminated in the presentation of two predictive statements suitable for experimental verification.

In the chapter to follow, the method by which these hypotheses were tested will be presented.

# CHAPTER II

## EXPERIMENTAL DESIGN

This chapter is primarily concerned with a presentation of the method of experimentally testing the research hypotheses set forth at the close of the preceding chapter. In doing so, each section is presented in such an order as to chronologically reflect the research design of this thesis.

Thus, the first section deals with a re-defining of the construct of frustration tolerance in operational terms. Following this will be a discussion of the sample structure, a description and definition of experimental frustration, and the procedure called for in quantifying the subject's responses during frustration. The chapter will close with a discussion of the dependent variable, a re-statement of the research hypotheses in the null form, and a discussion of the statistical analysis.

### 1. The Independent Variable.

In order to retain the highest degree of theoretical consistency between the construct of frustration tolerance, as envisioned by Rosenzweig, and the measurement thereof, the Picture-Association Study for Assessing Reactions to Frustration was utilized. Better known as the Picture-

Frustration Study, the P-F Study, or simply the Study, a brief description of the instrument is given in a publication by Rosenzweig, Fleming, and Clarke.

> (The P-F Study) represents a limited projective procedure for disclosing patterns of response to everyday stress that are of widely recognized importance in both normal and abnormal adjustment. The material of the test is a series of 24 cartoon-like pictures depicting two persons who are involved in a mildly frustrating situation of common occurrence. The figure at the left of each picture is shown saying certain words which either help to describe the frustration of the other individual, or which are themselves actually frustrating to him. The person on the right is always shown with a blank caption box above. Facial features and other expressions of personality are purposely omitted from the pictures.[1]

A subject's score on the Study is normally delineated on the basis of direction of aggression expressed, i.e., Extrapunitive (E); Intropunitive (I); or Impunitive (M), and type of aggression expressed, i.e., obstacle-dominance, ego-defensive, or need-persistence. However, inasmuch as this thesis is concerned with only the direction of aggression, only E, I, and M scores were tabulated.

It was shown in chapter one that both E and I scores are reflections of the individual's inability to withstand frustration, while M scores are indications of an opposite trend. Therefore, while the M scores were retained

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1 Saul Rosenzweig, Edith E. Fleming, and Helen Jane Clarke, Revised Scoring Manual for the Rosenzweig Picture-Frustration Study, Provincetown, Mass., Journal Press, 1947, p. 1.

according to Rosenzweig's original classification, E and I scores were combined to form one score, indicated by O ("Other").

It follows then that any one subject would receive a particular frequency of O scores and a particular frequency of M scores, and that a ratio of one score to the other could be tabulated. These scores were in fact, however, transformed into percentages by dividing the subject's particular O or M score by twenty-four, i.e., the total possible number in any one classification. In this manner, one's final score would represent the percentage of O scores found within his total record. Thus, one's level of frustration tolerance becomes operationally defined as the independent variable in terms of his relative O score on the Picture-Frustration Study. In this manner, the larger the O score, the lower the level of frustration tolerance, while the smaller the O score, the higher the level of frustration tolerance.

A. Temporal Stability of the Variable.

Insofar as an operational definition of frustration tolerance had been determined, the writer's attention was turned to the reliability of this definition. That is to say, to what extent does the P-F Study consistently measure tolerance for frustration?

To shed light upon this question, the Study was first administered in group form to eighty-nine female subjects homogeneous in respect to age, education, and socio-economic status. These subject variables are treated in detail under section two of this chapter. Following this administration, an O score was computed for each subject by the writer. In constructing a frequency distribution of O scores, it was found that the mean of the eighty-nine subjects was 71.00, while the standard deviation equalled 8.76. The mean and standard deviation from Rosenzweig's normative sample of eight hundred and seventy-four adults[2] was 66.6 and 1.48, respectively.

At the outset, it would seem that this writer's sample was a closer approximation of the general population than that of Rosenzweig's. Although the two sample means are statistically alike ($P < .01$), widely different standard deviations were found. In short, it would appear that Rosenzweig's sample failed to represent adequately the range of possible scores obtainable on the P-F Study. On the other hand, with a standard deviation of 8.76, this writer's sample would seem to have more adequately tapped the possible range of scores. Essentially, Rosenzweig's sample would

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2 Saul Rosenzweig, "Revised Norms for the Adult Form of the Rosenzweig Picture-Frustration Study", in Journal of Personality, 1950, Vol. 18, p. 344-346.

seem to demonstrate too high a degree of leptokurtosis to be truly representative of the general population.

Returning to the reliability of the instrument, the P-F Study was re-administered to the subjects after a time interval of three weeks. Again, the testing was done in group form. Following the tabulation of O scores for the second testing, a formula for obtaining a correlation of coefficient for matched pairs of observations suggested by Walker and Lev[3] was applied to the two sets of scores. This formula is reproduced below.

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

The resulting correlation of coefficient was .741, the occurrence of which would be expected less than one time out of one hundred by chance alone. It would follow that this correlation represents a degree of relationship between the two administrations of the P-F Study acceptable for research purposes.

B. Scorer Reliability of the Variable.

To the extent that the stability of a test score is related to the instrument from which the score is

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3 Helen M. Walker and Joseph Lev, Statistical Inference, New York, Henry Holt and Company, 1953, p. 234.

derived, so too, the stability of the examiner or scorer also influences a test score. This principle is especially applicable to personality tests.[4] To this end, an independent scorer was chosen to rescore the eighty-nine Picture-Frustration protocols. The scorer was instructed in the procedure of scoring the individual tests as regards to M and O scores, as outlined in the Revised Scoring Manual accompanying the test booklets.[5] Again, a correlation of coefficient was computed between the two sets of scores tabulated by the two scorers. The formula used in this case was the same as that used in the previous section. This coefficient was found to be .783 ($P < .01$).

2. Selection of the Sample.

From the previous section, it was shown that the construct of frustration tolerance was operationally defined in terms of one's relative O score. In this manner, the variable becomes a continuous one, and to be consistent with the theoretical construct, it was demanded that a method be utilized by which an empirical judgment could be made as to which subjects would be considered as possessing

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4 Anne Anastasi, Psychological Testing, New York, MacMillan Company, 1954, p. 101.

5 Rosenzweig, Op. Cit., p. 3-36.

a high tolerance for frustration and which subjects would be considered as possessing a low tolerance for frustration.

Theoretically, the possible range of O scores would be from zero through one hundred. However, in actual fact, the observed range spanned from forty-two through ninety-two. To assure that the selection of subjects would represent the extremes of the construct of frustration tolerance then, it was thought that selecting only those subjects falling at the respective extremes of the distribution would be justified. With this principle in mind, the twenty subjects with the lowest O scores were chosen to represent the high frustration group. At the other extreme, the twenty subjects with the highest O scores were chosen to represent the low frustration tolerance group. In this way, the two extreme groups accounted for 44.9 per cent of the total number of subjects. The remaining forty-nine subjects, or 55.1 per cent of the total number of subjects, were eliminated from further consideration in the investigation.

To assure statistical separability of the high and low groups, a test of mean difference of O scores was computed. The mean O score of the high group was 58.76, with a standard deviation of 6.08, while the mean O score of the low group was 87.25, with a corresponding standard deviation of 3.56. Through a test of mean difference, the null hypothesis was rejected at the .01 level of confidence. Thus,

empirically, the high and low frustration tolerance groups would appear to be distinct in regard to the variable under consideration, namely, frustration tolerance level.

Inasmuch as the subject variables experimentally found to influence P-F Study scores have been age, education, and socio-economic status,[6] the original eighty-nine subjects were examined in this regard. A computation of the mean age of the high tolerance group was revealed to be twenty-six years and seven months, with a standard deviation of 5.60. The mean age of the low tolerance group was shown to be exactly twenty-six years, with a corresponding standard deviation of 5.63. A test of mean difference failed to reject the hypothesis of no difference at the .01 level of confidence.

The mean education of the high tolerance group was 16.54 years, with a standard deviation of 5.68, while the mean education of the low tolerance group was 16.41 years, with a standard deviation of 6.54. A test of mean difference failed to reject the null hypothesis at the .01 level of confidence.

The subject variable of socio-economic status was not explicitly controlled. However, inasmuch as this

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6 Robert E. Stoltz and Marshall D. Smith, "Some Effects of Socio-Economic, Age, and Sex Factors on Responses to the Rosenzweig P-F Study", in Journal of Clinical Psychology, 1959, Vol. 15, p. 200-203.

variable has been shown to be highly correlated with level of education,[7] it was felt that "by association", the sample would be homogeneous in regard to this variable.

In brief then, the structure of the final sample for this investigation, consisting of forty, white, female subjects would appear to (1) be dichotomous in regard to their level of frustration tolerance, (2) more accurately represent the general population, in terms of range of scores, than has been previously reported by the author of the P-F Study, and (3) be homogeneous in regard to the three variables found to have influence on Picture-Frustration Study scores, namely, age, education, and socio-economic status.

### 3. Experimental Frustration.

In considering the multitude of experimental tasks which would presumably lead to a state of frustration in the subjects, thought was first given to the subjects in the task. Now, the specific frustration task, in and by itself, would seem to be of little consequence. Indeed, previous investigations have employed tasks ranging in variety from depriving the subjects of primary need gratification and

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7 Anne Anastasi and John P. Foley, Jr., Differential Psychology, New York, MacMillan Company, 1949, p. 765.

inflicting actual pain, through very difficult psychomotor and memory tasks.[8] However, when the investigations are scrutinized closely, two common elements come to light which transcend the task itself. The first can be classified as a subject variable and explicitly designated as ego involvement.

A. Ego Involvement.

English and English define ego involvement as "the relationship in which a task or situation is regarded as important to the ego".[9] Various sources in the literature point up the importance of ego involvement in modifying the subject's motivational approach to activities. Although at least one author has argued the point that the experimenter must often assume his subjects to be ego involved,[10] others would take a more liberal stand in the matter.

A classical distinction has been made in psychological literature between task-oriented and ego-oriented subjects in that the latter can be experimentally established

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8 Chapter one, p. 26-33.

9 Horace B. English and Ava C. English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms, New York, Longmans, Green and Co., 1958, p. 172.

10 Ava Dreikurs Ferguson, "Ego Involvement: A Critical Examination of Some Methodological Issues", in Journal of Abnormal and Social Psychology, 1962, Vol. 64, p. 407.

by simply instructing the subjects that the ability to perform on a given task is, in actual fact, a measure of the subject's intelligence.[11]

Similarly, in an investigation by Vogel, Raymond and Lazarus, the experimental induction of ego involvement was accomplished through simply administering the appropriate instructions.[12] The effects of ego involving instructions were not only reflected in the criterion variable, but also when a highly direct and objective measure of motivation, i.e., PGA, was made.

In making use of a reasonably direct measure of motivation, i.e., level of aspiration, Feather found that when subjects were forced to choose between two responses, clear-cut effects from ego involving instructions were obtained.[13] In point of fact, several experimental sources have shown that almost every performance is modified, depending upon the presence or absence of ego involvement.[14]

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11 Thelma G. Alper, "Task-Orientation and Ego-Orientation as Factors in Reminiscence", in Journal of Experimental Psychology, Vo48, Vol. 38, p. 237, 225.

12 William Vogel, Susan Raymond and Richard Lazarus, "Intrinsic Motivation and Psychological Stress", in Journal of Abnormal and SocialPsychology, 1959, Vol. 58, p. 225.

13 N.T. Feather, "Subjective Probability and Decision under Uncertainty", Psychological Review, 1959, Vol. 66, p.19.

14 Gordon W. Allport, "The Ego in Contemporary Psychology", Psychological Review, 1943, Vol. 50, p. 451-478.

Thus, a crucial point in this writer's experimental design is the structuring of instructions in such a manner as to maximize the probability of inducing ego involvement in the subjects of the study. The exact instruction used are reproduced under subsection D in this chapter.

B. Task Difficulty.

The second variable considered to be of consequence in planning the frustration task may be broadly viewed to be a task variable, i.e., a condition of the experimental task. Specifically, the task difficulty level was focussed upon as being germane to the design.

In chapter one, it was seen that any obstacle placed in the path of the satisfaction of some vital need results in frustration.[15] In terms of the concrete design of this thesis, the need in question may be seen as that of defending the ego from psychological threat, while the obstacle to this need satisfaction may be viewed as the inability of the subject to perform on a given task. It follows, that to assure poor performance, the task must be of such a magnitude of difficulty as to preclude such a possibility. The exact manner in which this was accomplished is fully discussed in the section to follow.

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15 Chapter one, p. 6.

C. Choice of Task.

For the specific frustrating task, the writer elected to utilize a psycho-motor task consisting of a pursuit rotor modeled after the apparatus used by Eysenck. Insofar as Eysenck's research with the rotor was partially concerned with motivation and task difficulty, the rotor seemed particularly appropriate for this thesis. Below is a brief description of this apparatus:

> (The pursuit rotor) consists of a hard-plastic turntable into which is set a small metal disk that constitutes the target. While the turntable is revolving (...) the subject tries to hold a metal stylus in continuous contact with the target. Contact activates an electric (digital counter) that (registers) time-on-target.[16]

Since Eysenck considered the turning of the turntable at sixty r.p.m. to be "very difficult" for a significantly large proportion of his adult female subjects, this writer selected seventy r.p.m. as a means of assuring a high level of task difficulty. Moreover, to further increase level of difficulty, the subjects were required to use hand opposite from the one normally used in writing. Thus, experimental frustration is here defined operationally in terms of the specific task involved, i.e., performance on the pursuit rotor.

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16 H.J. Eysenck, "The Measurement of Motivation", in Scientific American, 1963, Vol. 208, p. 130.

D. Procedure.

Each subject was seen individually by the writer. Following a conventional greeting, establishing the subject's number for identification purposes, and determining the hand used for writing, the succeeding instructions were read aloud:

> Please listen carefully to the following instructions. This machine measures motor-coordination, powers of concentration, and general adaptability. As a group, nurses have been found to do very well at this. Now, what I am interested in is how well nurses can perform on this machine and at the same time compose verbal sentences quickly.
>
> Now, I will start this turntable moving around, and when I say "begin", you will try to make contact with this plate here (pointing and demonstrating) using your left (or right) hand. Every time you make contact with the plate, it will be counted here (pointing to the digital counter).
>
> You must follow this plate and try to make contact with it for fifteen seconds, and when I stop the machine, you are to very quickly compose a complete verbal sentence for me. We will repeat this four times. Are there any questions?

Following the necessary clarifications, the subject was instructed to ready herself for trial number one. The rotor was turned on, and after reading seventy r.p.m., the writer said, "Please begin".

As the subject began, the writer began timing her performance with a standard stop-watch. After ten seconds had lapsed, the writer said, "That's too bad, I thought for sure you would be doing better on the machine than that". At the end of the fifteen second trial, the machine was

turned off, and the subject responded with her first verbal sentence. The fifteen second period of attempting to make contact with the plate, plus the verbal sentence, composed one trial.

Trial two was begun, and after another ten second period, the writer said, "You should be able to do better than that." Again, the machine was turned off after a full fifteen seconds, and the second verbal sentence was given by the subject.

Trial number three was begun, and after another ten second period, the writer said, "I don't think you are doing too well at all." Following the recording of the subject's third verbal sentence, the fourth trial was begun, and after another ten second period, the writer said, "It's a shame you can't seem to concentrate better." Following the subject's fourth sentence, trial number five was begun, and after another ten second period, the writer said, "The nurse before you seemed to do much better than you are doing." After fifteen seconds had lapsed, the machine was turned off, and the subject gave her fifth and final verbal sentence.

At this time, the subject was asked several post-frustration task questions as a means of determining her subjective feelings regarding the procedure. Following the post-frustration task questioning the subject was told her

performance had really been quite good, and that she had generally "passed the test". The usual discussion of confidentiality followed as a means of controlling the possible interaction between subjects regarding the experimental procedure. To help facilitate this, the writer informed the subjects that he would speak to the entire group of subjects regarding the experiment, whereby the details of the study would be revealed.

In brief then, each subject was (1) seen individually by the writer; (2) instructed in the task in the exact same manner; (3) presented the same verbally punishing statements in the same order; (4) timed exactly the same; and (5) instructed as regards confidentiality.

Unknown to the subjects, was a concealed microphone in the experimental room which led to a tape recorder in another room. An assistant operated the tape recorder while at no time actually coming in visual contact with the subjects. For purposes of reducing the probability of bias, as well as for economy of recording tape, the assistant edited the recording in such a fashion as to only include the subject's (1) identifying number; (2) the five verbal responses of each; and (3) the post-frustration task questioning.

## 4. The Dependent Variable.

In the preceding section, it was descriptively shown how the subject's verbalizations were both elicited and recorded. Accordingly a method of determining the direction of expressed aggression, as reflected in each of the subject's verbal responses was needed. It was decided that the most experimentally defensible method by which this could be accomplished would be through the use of raters. That is, a judgment would be made in regards to direction of expressed aggression for each of the five sentences for each of the forty subjects.

### A. Rating of the Variable.

In keeping with this plan of action, two raters were chosen from a list of individuals thought to be particularly sensitive to the task of making such judgments. The original list of potential raters was compiled by the director of this thesis.

The raters were instructed to rate each of the five sentences for each of the subjects in terms of Impunitive or "Other" (Extrapunitive or Intropunitive) direction of aggression. They were further instructed in the criteria set forth by Rosenzweig[17] in making such judgments. After

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17 Rosenzweig, Op. Cit., p. 3.

a one week time interval, these same individuals again rated the subject's responses in the same fashion as first described.

In effect then, four sets of judgments were made of the dependent variable, i.e., two sets for $rater_1$ and two sets for $rater_2$.

B. Quantification of the Variable.

In an earlier section of this chapter, frustration tolerance was considered to be a continuous variable. However, in forcing the raters to make and "either, or" judgment for each of the subject's verbalizations, the variable necessarily now becomes dichotomous, if but by imposition.

With this situation, the total possible number of M or O verbal responses for any one subject would be five. However, by probability, one might expect less than this; a subject could obtain any of the combinations in between these two extremes. That is, one M and four O's, two M's and three O's, three M's and two O's, or four M's and one O. The problem of quantifying the variable is now reduced to that of making a judgment as to what particular M and O combination shall be designated as reflecting an individual with high tolerance for frustration, and what combination shall be indicative of an individual with low tolerance for

frustration. For this judgment, an admitted degree of preemptory thought is necessary.

In resolving this dilemma, the writer elected to designate as reflective of high tolerance for frustration a combination of responses whereby at least three of the total number of responses were of the M direction. Counterwise, a combination of responses whereby at least three of the total number of responses were of the O direction would be designated as reflective of low tolerance for frustration. For example, the subject who produced either three, four, or five M responses during the experimental frustration situation would be denoted as belonging to the high tolerance group. On the other hand, the subject who yielded either three, four, or five O responses would be denoted as belonging to the low tolerance group. In this manner, the criterion for the placing of a subject into either the high or low frustration tolerance groups would be that he produced responses of common direction equal to or greater than sixty per cent of his total number of responses.

C. Rater Reliability.

Insofar as it was crucial to this thesis to investigate scorer reliability on the Picture-Frustration Study, it became equally germane to gain a like measure of reliability between (1) $rater_1$ and $rater_2$, (2) $rater_1$ and

himself, and (3) $rater_2$ and himself. In the first case, the resulting correlation yields information regarding the degree to which the two independent raters make judgments in common with one another. In the latter two cases, the resulting correlations offer insight into the degree to which each individual rater makes judgments in common with himself. Both of these relationships would seem to be important for this thesis.

In accordance with this scheme, a Product-Moment coefficient of correlation was computed between the judgments made by $rater_1$ and those of $rater_2$. This coefficient was equal to .924 ($P < .01$). After a one week time interval, the raters were again asked to make judgments as to the direction of the subject's verbally expressed aggression. At this time, two correlations of coefficient were computed; the first between the first and second set of judgments for $rater_1$, and the second between the first and second set of judgments for $rater_2$. In the case of intra-$rater_1$ reliability, the resulting correlation of coefficient equalled .831 ($P < .01$). In the case of intra-$rater_2$ reliability, the resulting correlation of coefficient equalled .662 ($P < .01$).

From these three coefficients, it may be said that (1) the two independent raters are in sufficient agreement regarding their judgments of the independent variable and

(2) each rater is in sufficient agreement with himself regarding his judgments of this same variable.

### 5. Statistical Hypothesis.

Before proceeding to chapter three, a reformation of the research hypotheses in the null form is in order. By way of refreshing the reader's memory, the research hypotheses stated that (1) subjects demonstrating low tolerance for frustration would verbally respond to experimental frustration in either an Extrapunitive or Intropunitive direction, and (2) subjects demonstrating high tolerance for frustration would verbally respond to experimental frustration in an Impunitive direction. In the null form, it may be hypothesized that

> there is no significant difference in verbal responses between high and low frustration tolerance.

In the next section, the method by which this hypothesis was tested is discussed.

### 6. Statistical Analysis.

As was shown, the process of identifying the dependent variable was essentially that of determining (1) the total number of responses (for any one subject) which were judged by the raters to be Impunitive in direction, (2) the total number of responses (again, for any one

subject) which were judged to be either Extrapunitive or Intropunitive, i.e., Other by the raters and, finally, (3) placing the individual subject in one of two categories (Impunitive or Other) on the basis of which direction appeared more frequently. A judgment as to which of the two categories a subject ultimately became associated with was based upon at least three of his verbal responses being rated in the same direction. Thus, a subject would be associated with an Impunitive direction of verbally expressed aggression if he were rated as having responded in this direction three or more times in his set of five trials. Likewise, a subject would be associated with an Other direction of verbally expressed aggression if he were rated as having responded in this direction three or more times in his set of five trials. In actual fact, the full range of possible I/O combinations were represented by the subjects. That is, all combinations of I/O ratios appeared 5/0, 4/1, 3/2, 2/3, 1/4, and 0/5. Parenthetically, 5/0 and 4/1 (or 0/5 and 1/4) combinations accounted for 57.5 per cent of the total possible number of combinations.

Now, from the outset it would seem clear that the problem of statistically analyzing the data could be approached conceivably from several different points of view. At the same time however, from viewing the particular set of raw data gained from this study, two reasonably

obvious possibilities come to the fore. In the first case, a simple test of mean difference between the two directions of aggression of the dependent variable could be computed, i.e., between I and O. Should, in fact, a significant difference exist between the two directions of responding, a logical inference could be made from a knowledge of the probability of such an occurrence. However, in order to even approach this method, the two directions of verbally expressed aggression must be first quantitatively symbolized. This was done by assigning a value to one of any Impunitive response, and zero to any Other response. In this manner, Guilford's formula for computing Student's t ratio was applied.[18] It is here below reproduced.

$$t = \frac{M_d}{\sqrt{\frac{\Sigma(D - M_d)^2}{N(N-1)}}}$$

The validity of this t value would necessarily depend upon two basic assumptions underlying the distribution of the studied trait in the population. The first is that of the studied trait being normally distributed in the universe, while the second is concerned with the homogeneity of the respective variances. A check is provided for the

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18 J.P. Guilford, Fundamental Statistics in Psychology and Education, New York, McGraw-Hill, 1956, p. 220.

latter assumption by means of an F test, again suggested by Guilford.[19] The formula for this test is reproduced below.

$$F = \frac{\text{Larger Variance}}{\text{Smaller Variance}}$$

However, inasmuch as the respective variances for the two directions of verbal responding were $\sigma_1 = \sigma_2 = 1.50$, and that such an occurrence is not likely to occur more than once out of a hundred times by chance, the computation of the F test for homogeneity of variance became unnecessary.

However, in order to test the specific predictive value of the research hypotheses, as seen at the close of chapter one, further statistical analysis becomes necessary. It will be recalled that the two specific hypotheses were as follows:

1. Subjects demonstrating low tolerance for frustration will verbally respond to experimental frustration in either an extrapunitive or intropunitive direction.

2. Subjects demonstrating high tolerance for frustration will verbally respond to experimental frustration in an impunitive direction.

Inasmuch as the raw data consists essentially of the frequency with which persons operationally defined as demonstrating either high or low tolerance for frustration

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19 Guilford, Op. Cit., p. 224.

respond in one of two predetermined directions, a chi square analysis would seem the appropriate statistical technique to apply.

In light of this, a two by two contingency table was constructed on the basis of the observed frequencies tabulated from the judgments made by the raters of the subject's verbal responses, as well as the known frequency of subjects falling into either a high or low frustration tolerance classification. Below is a reproduction of this contingency table. This table should be noted, as reference will be made to it, in the following chapter.

| | Impunitive | Other | |
|---|---|---|---|
| High | 10 | 10 | 20 |
| Low | 3 | 17 | 20 |
| | 13 | 27 | 40 |

Now by inspection, it can be seen that a risk of error is involved if chi square is computed without taking into account the small frequencies of the individual cells of the contingency table. Thus, in order to avoid such a possibility, a formula suggested by Guilford was applied in which Yate's correction for error resulting from

discounting such frequencies is included.[20] This formula is reproduced below.

$$\chi^2 = \frac{N(/ad-bc/ - N/2)^2}{(a+b)\ (a+c)\ (b+d)\ (c+d)}$$

Quite aside from the formal statistical analyses of the data, and in terms of relating these results to specific hypotheses, the author found it advisable to take a closer view of the specific pattern of verbal responses which emerged from the study. In order to do this, the sum total of each direction of response was computed for each of the five trials given the subjects. Thus, on trial number one, twenty-four I and sixteen O responses were given. On trial two, sixteen I and twenty-four O responses resulted; trial three, fifteen I and twenty-five O; trial four, nine I and thirty-one O; and trial five, ten I and thirty O responses were given. This data too will be returned to in the following chapter.

In this chapter, the writer has attempted to present the essentials of the research design of the problem as developed in chapter one. In doing so, an operational definition of the independent variable was offered, followed by a discussion of the subjects for the study, the details surrounding experimental frustration, a discussion of the

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20 Guilford, Op. Cit., p. 237.

dependent variable, the formation of the statistical hypothesis, and finally, a discussion of the statistical analysis.

In the chapter to follow, two main topics will be presented to the reader: the results stemming from the testing of the null hypothesis, and the interpretations given these results.

# CHAPTER III

## RESULTS AND THEIR INTERPRETATION

In this last chapter, two sections will be presented for consideration. The first deals with the results stemming from the statistical analysis, while the final section will be composed of an interpretive discussion of these results followed by an elucidation of possibilities for future research.

### 1. The Results.

Following from the method given in chapter two for testing the mean difference between the directions of verbally expressed aggression, a t value of 3.41 ($P<.01$) was obtained. Thus, by means of this test of mean difference, the null hypothesis that

> there is no significant difference in verbal responses between high and low frustration tolerance

is necessarily rejected at an accepted level of confidence.

From the chi square method of analysis as outlined in chapter two, a value of 4.10 was obtained. Based upon one degree of freedom, this value falls short of being significant at the .01 level of confidence, but is significant at the .05. By inspection of the contingency table in chapter two, it becomes clear that the first research

hypothesis is cautiously supported, namely, that the subjects who demonstrated low frustration toler nce tended to verbally respond to experimental frustration in either an Extrapunitive or Intropunitive direction.

From the contingency table, it also becomes evident that the subjects demonstrating high frustration tolerance failed to verbally respond to experimental frustration in an Impunitive direction beyond what would be expected by chance occurrence. Thus, the second research hypothesis is not supported.

2. Interpretive Discussion of Findings.

From the statistical testing of the first research hypothesis in the previous section, it was seen that subjects scoring high on the Picture-Frustration Study (thus being categorized as having a low tolerance for frustration), tended to verbalize responses denoting an inadequate mode of reacting to psychological stress, in this case, frustration. In terms of the theoretical formulations of Rosenzweig, these subjects both fail to demonstrate a capacity to delay gratification in the test taking situation, as well as in an experimentally induced frustration situation. And, it is this inability to withstand discharge, when frustrated, that has been operationally defined as an

inadequate mode of reacting, specifically the Other direction of verbally responding.

As was seen in chapter one, the psychodynamic implications of responding to frustration in this manner may also be found within the general body of psychoanalytic theory. To the extent that the Other direction is considered to consist of both Extrapunitive and Intropunitive responses, the subject responding in this direction is assumed to be defensively projecting his aggression onto the outside world (in the case of the Extrapunitive response), or introjecting, i.e., turning his aggression inward, toward the self (in the case of the Intropunitive response).

By the same token, these same subjects may be thought of as being substantially influenced by the pleasure principle. Theoretically, the direction of the reaction of these subjects reveals their failure to adopt more adequate modes of responding. In effect, the unpleasantness associated with being subjected to a situation which is psychologically threatening, results in a partial failing in the sphere of ego functioning, at least to the degree that the operationally defined inadequate response is elicited.

Now, from the point of view of developmental psychology, such subjects would seem to have failed in their efforts to subordinate their immediate gratification of needs and impulses to the restraining influence of the ego.

Like the child who has yet to become fully socialized, the adults referred to in this hypothesis attack the environment or themselves as a means of defending against the unpleasantness of the frustration arising from the experimental situation and, in doing so, reflect their basic intolerance for frustration. Developmentally, Other responses to frustration would seem to appear earlier than responses of an Impunitive direction. And, from this point of view, the relative lack of ego strength associated with a failure to show Impunitiveness is ascribed to those subjects demonstrating low tolerance for frustration on the Picture-Frustration Study.

However convincing this argument may be for interpreting the finding associated with the first hypothesis, cautiousness must be exercised in terms of over extending this interpretation, especially when the nature of the task involved in the Picture-Frustration Study is compared with that of the experimental frustration task. It could be considered possible that observed differences in the dependent variable would exist simply because of an inherent difference between the Picture-Frustration Study as a task, and the experimental frustration situation as a task.

On the one hand, the P-F Study is directed primarily towards the elicitation of responses to social frustration, i.e., involving other persons and not things, while the frustration task on the other hand, primarily if not wholly,

involves frustration in the area of psychomotor functioning. However, this writer would view such a division as being somewhat over-simplified. Simply because a motor task was utilized as the immediate means by which the subjects were frustrated, does not negate the substantial probability that social frustration was an active factor in both situations. In the frustration task, punishing verbal statements were introduced by the experimenter, and were designed to increase the nature of the frustration experience. And secondly, the experimenter's presence during the frustration task would surely lend weight to the argument that the latter task was not wholly frustrating on the basis of poor psychomotor performance alone. Surely, when these two factors are taken into account, any attempt to divide the two tasks in terms of social frustration, as opposed to psychomotor frustration, becomes at once categorical.

Some support for the contention that the frustration task was permeated with social overtones can be seen from the subjects' verbal responses as well as their spontaneous remarks following the experimental task. Below are representative comments made by the subjects regarding their feelings surrounding the frustration task, vis a vis, the experimenter.

"You made me so nervous I couldn't do it (the task)."

"I could have done it better if you hadn't watched me so closely."

"I think you were just trying to make me mad, and you sure did."

Now, at the same time, the question of criterion of frustration would seemingly play a dominant role in interpreting the dependent variable. In the chapter on experimental design it was pointed out that at least two factors are important in this regard, namely, task difficulty and ego involvement. As in the case of the question as to whether or not social frustration was involved in the experimental situation, the evidence for supporting the contention that the subjects were actually frustrated is only indirect. Nevertheless, the remarks made by the subjects lend some insight even though after the fact, into this question. Below are representative comments in this regard.

"Oh, that was awful! I just couldn't seem to get it."

"I guess this proves I'm not a very good nurse."

"If I could have used my other hand, I wouldn't have made such a poor showing."

"I always thought I was a good nurse (starts crying), but I guess this proves I'm no good at all."

Interestingly enough, some of the subjects who showed obvious behavioral signs of stress and anxiety, i.e., facial grimaces, hand and lower arm tremors, lip biting, and constricting of the psychomotor movements, completely denied their feels of frustration when questioned at the

termination of the experimental task. Again, representative comments are offered below.

"I felt nothing at all."

"This was not difficult at all, not even frustrating."

"I have no feelings whatsoever about it (the task)."

An analysis of the comments in relation to whether the person was of a high or low frustration tolerance yielded little that could be interpreted in light of Rosenzweig's theory. On the contrary, one could not predict on the basis of the post-frustration comments into which category the subject fell, i.e., high or low tolerance for frustration. In all probability, many of these persons denied their feelings when given the opportunity to "recover" from the effects of the actual task itself. This again, lends support to the assumption that such persons were, in fact, frustrated at the time such frustration was intended.

For interpretive, as well as ethical reasons, the author spoke to the entire group of subjects following the experiment. At this time, several questions were put to the group and their responses recorded. The purpose here was actually threefold. First, the author wished to gain some idea as to the relative transparency of the experiment, as viewed by the subject nurses. Secondly, the question of confidentiality was again explored. And thirdly, the subject's feelings concerning her experience were looked

into in hopes of further supporting the assumption that the subjects experienced feelings of frustration during their performance on the pursuit-rotor.

Thus, the first question was phrased in the following manner: "What did you think I was doing in the experiment, or trying to find out?" To this, the subjects reacted with a great variety of reasons, none of which actually centered upon the true nature of the study. Some representative rationales for the study are cited below.

"(...) adaptability for nursing", (...) to find out about our intelligence (...)" (these two comments were implied in the instructions) "(...) to find out our level of maturity", and rather esoterically, "(...) to discover what happens to us under sensory input".

The second question put to the group was stated in the following way: "Did any of you speak with one another about the study?" To this, the group responded with an overwhelming "no". By and large, the writer feels the subjects complied with his wishes as set down in the instructions that they refrain from conversing with one another about the experiment, as the subjects seemed to take the task as a serious one and, as was implied above, were ego involved.

And finally, the group was again asked to relate how they felt during the experiment. This question was

formulated as follows: "How did you feel while working on the machine?" To this question the subjects answered with short, yet revealing responses. Examples were, "frustrating", "silly", "wanted to stop", "stupid", "like a fool".

Even though the evidence is after the fact, it would seem that the subjects (1) were unaware of the true nature of the experiment, (2) complied with the instructions not to speak with anyone concerning the task itself, and (3) felt frustrated or in some way blocked in their attempts to perform with a high degree of proficiency on the task, and generally very uncomfortable at what they were doing.

Following the recording of the above questions, the writer proceeded to briefly explain the true purpose of the study. Because of the nature of some of the subjects' responses and feelings, both during and following their experience with the frustrating task, (more than one subject became upset to the point of crying), it was felt advisable to emphasize that the nurses' performance on the pursuit-rotor was in no way related to their ability or performance as nurses. In general, the nurses responded with surprise and sheepishness at discovering what the experimenter had attempted to do.

In turning to the second research hypothesis, the results fail to facilitate such a simple interpretation. As will be recalled, it was predicted that subjects who scored

low on the P-F Study (thus categorizing themselves as having high tolerance for frustration) would give a disproportionately high frequency of Impunitive verbal responses. However, this was not the case. In fact, the subjects' verbalizations were equally distributed between the two possible directions with which the aggression could be expected to be expressed; ten responses each for both the Impunitive and Other directions were tabulated. Moreover, such a distribution of frequencies is not beyond chance expectancy.

Inasmuch as this finding seems inconsistent with the rationale as developed in chapter one, the writer is cautiously inclined to partially reject Rosenzweig's thinking concerning frustration tolerance and the measurement thereof. Although logically consistent, Rosenzweig's theory may be invalid in terms of its applicability to those persons thought to possess a high degree of tolerance for frustration. However, it would reflect a certain superficiality on the writer's part to conclude the interpretation at this point.

A further possible interpretation that this writer sees as being feasible is found from viewing the Picture-Frustration Study itself. It was noted that those subjects classified as having low frustration tolerance responded predictably in keeping with what was thought to be theoretically true, i.e., in an Other direction. In a sense then,

this finding lends a degree of measurement validity to at least those subjects' scores which were high on the P-F Study (thus indicating low tolerance for frustration). However, this in no way speaks for those scores at the opposite end of the distribution. Indeed, these scores, from viewing the even split of the dependent variable frequencies, may be highly invalid. If, in fact, this is the case, one could hardly expect the Picture-Frustration Study to adequately separate those having high tolerance from any other tolerance level. Thus, on the basis of this reasoning, subjects classified as having low tolerance for frustration may be predicted to verbally respond to frustration in a manner reflecting their basic incapacity to delay impulse gratification. While at the same time, subjects classified as having high tolerance for frustration could not be predicted to verbally respond in either the Impunitive or Other direction with any acceptable degree of statistical reliability.

A third interpretation is centered upon the psychodynamic functioning of the subjects. That is, those subjects classified as having high tolerance on the P-F Study may possess a certain unknown personality characteristic or characteristics which set them apart from their low tolerance counterparts, and subsequently accounted for their unpredictable behavior during experimental frustration.

Although pure speculation at this stage of the present research, it is possible that those with high tolerance were so classified because of their inclination toward certain ego defense mechanisms, such as reaction formation and/or denial. If true, such subjects could conceivably deny Other directions of aggressive responding on the P-F Study, yet revert to reaction formation when pressed psychologically, as in the experimental frustration situation of this thesis.

In section six of the previous chapter, an informal analysis of the specific pattern of verbal responses was made. Although the quantitative data were made explicit at that time, Figure 1 summarizes this same data in diagramatic form, and is presented at this time in order to maintain a degree of continuity between the data and the interpretation thereof.

It will be noted that the figure illustrates the frequency of Impunitive and Other responses as a function of trial number. At a descriptive level, it can be seen that on the first trial Impunitive responses accounted for sixty per cent of all possible responses given. However, by the second trial, Impunitive responses now accounted for only forty per cent of the total number of responses, while Other responses now accounted for sixty per cent of the total. This trend for the overall number of Impunitive responses to decrease with each succeeding trial is both progressive and

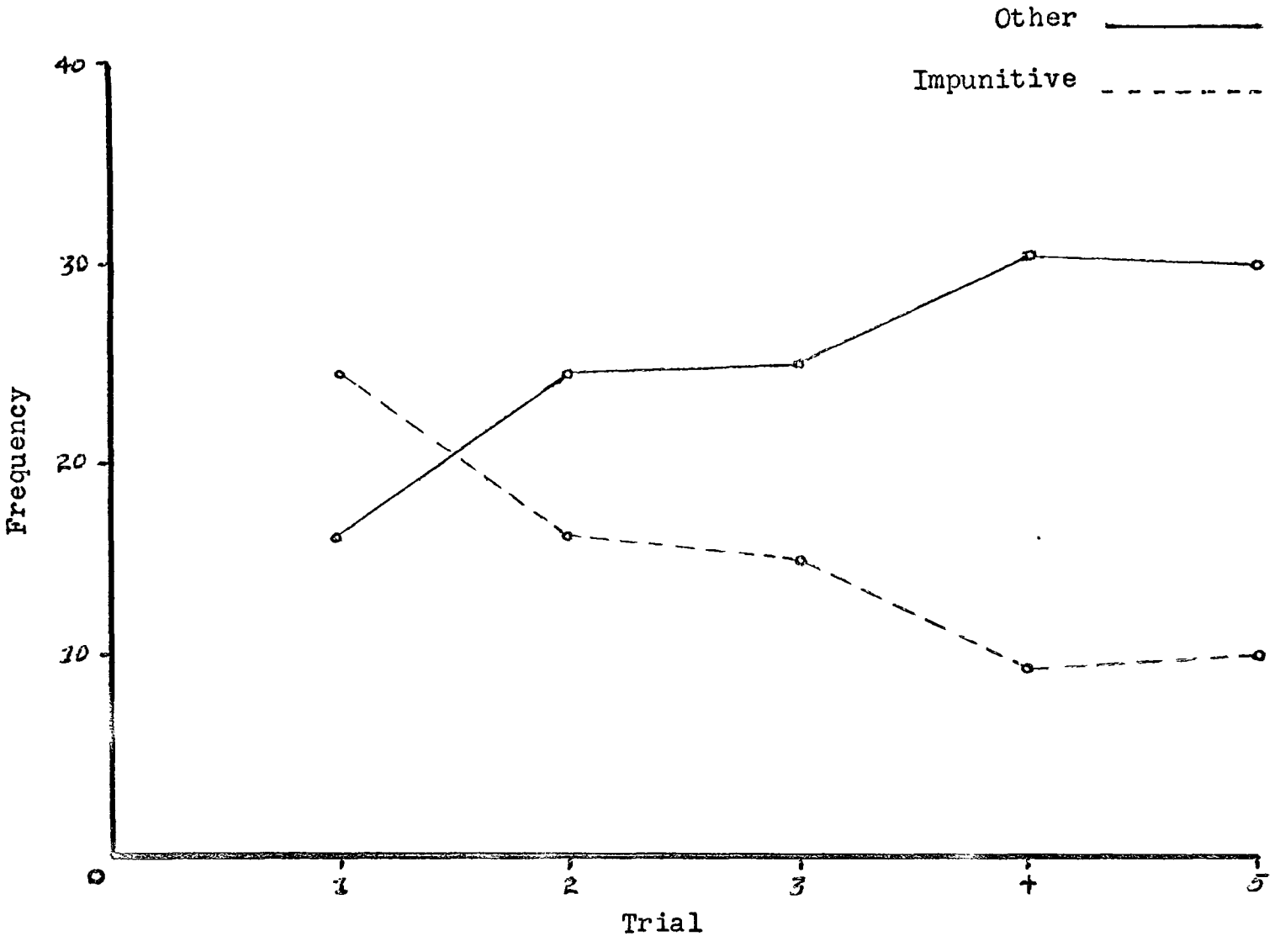


Figure I.- Frequency of Response Direction as a Function of Trial Number

definitive (with the exception of the final trial, where a slight decrease in the divergency of the two directions becomes apparent), until by trial number four, the gap between the Impunitive and Other responses has grown to a ratio of approximately ten Other to only three Impunitive responses.

At first glance, at least two interpretations are offered for this trend. On the one hand, the increase in Other responses, with the corresponding decrease in Impunitive responses, may be a function of the "additive effect" of each succeeding trial. That is to say, as the subjects were required to attempt the frustrating task time and time again, their tolerance to withstand frustration, as reflected in their inclination to give Impunitive responses, became increasingly difficult. Thus, to the extent that the subjects were subjected to reoccurring frustration, they tended to give Other responses.

At the same time, it may also be noted that only on the first trial were there a greater number of Impunitive responses than Other; thereafter, Other responses dominate. From the psychodynamic point of view, it may be reasonably assumed that the subjects entering the experimental situation did so with a relatively high degree of ego defensiveness, regardless of their prior classification of frustration tolerance level. Were this the case, one might expect this

defensiveness to manifest itself most dramatically on the first trial. Thus, it may be speculated that the high frequency of Impunitive responses given on the first trial is a function of the subject's "over controlled" approach to the entire experimental procedure, which tended to disappear as the subjects were repeatedly frustrated and subsequently forced into yielding responses reflecting an inadequate mode of responding.

A second yet less convincing interpretation is concerned with the verbal statements of the experimenter which were designed to punish the subjects, and thus create increased degrees of frustration. Inasmuch as the exact stimulus value of the statements was unknown, their value may have been unequal in terms of the probability of each statement to increase the level of frustration. Thus, it is not beyond the realm of possibility that those statements given at the end of the five trial series had a greater subjective impact upon the subjects than did those statements at the beginning of the series. However, this writer would tend to reject this interpretation in favor of the former one on the basis that it is highly unlikely that chance selection and ordering of the statements would have resulted in such an obvious effect upon the number of responses given in each direction.

In light of the preceding discussion of the formal and informal statistical findings, attention is turned to implications for future research. Insofar as this thesis was concerned with the subjects' verbal responses to experimental frustration, attention was directed toward essentially two directions, namely, Impunitive and Other. As was seen, no attempt was made to delineate Other responses into their theoretical component parts, i.e., Extrapunitive and Intropunitive, since it was felt theoretically justified to combine these two directions into one, which in turn, reflected an inadequate mode of responding. However, future investigations within this specific area might well make this distinction. In doing so, a more refined light may be shed upon the propensity for low frustration tolerance subjects to either turn their aggression outward upon the environment, or inward upon themselves. Moreover, not only may such a distinction of responding be correlated with level of frustration tolerance, but may also be related with other specific personality dimensions or traits, one of which may be the introversion-extraversion continuum.

Furthermore, this writer envisions an investigation whereby the verbal behavior of subjects, elicited under frustration circumstances, are correlated with these same subjects' <u>non-verbal</u> behavior. Various indices of this nature could include the more morphological modifications

the subjects may exhibit, i.e., facial expressions, tremors associated with various body parts, and general motor restlessness or constriction, as well as the more physiological measurements, i.e., galvanic skin responses, pulse, and respiration modifications. Such research would hopefully offer findings which could have important theoretical implications in terms of the relationship of the subject's affective and physiological behavior under frustration conditions. From a more pragmatic standpoint, findings from such a research project could offer the clinical practitioner important information with which to better guide his assessment of the functional properties of his client.

In a highly molecular investigation, an attempt could be made to delineate and subsequently correlate the direction of verbally expressed aggression on the basis of content (as was done in this study), with the direction of aggression as expressed and reflected in the subject's emotional or affective loading (through under- or over-emphasis upon certain words of his statements, as well as various inflections) with which he expresses this content.

In this last chapter, the results proper were presented. The final section of the chapter dealt with various interpretations which could be given for the findings, and closed with the offering of speculations for future research.

# SUMMARY AND CONCLUSIONS

By way of theoretically interconnecting certain selected writings of Rosenzweig with those from physiology and psychoanalysis, an attempt was made in the direction of defining the construct of frustration tolerance. Taken from Rosenzweig's theory of frustration, three reasonably distinct directions of expressing one's aggression to frustration emerged, namely, an Impunitive, Extrapunitive, and Intropunitive direction, of which the latter two were taken as reflecting inadequate modes of responding, and were subsequently designated as Other responses.

A review of previous empirical investigations with the Picture-Frustration Study revealed a largely pragmatic research orientation, which tended to neglect the relationship between Rosenzweig's theory of frustration and people's overt reaction to frustrating situations. Moreover, there was no evidence as to the relationship between one's relative score on the Picture-Frustration Study and his direction of verbally expressed aggression. Thus, it was hypothesized that subjects classified as having low frustration tolerance on the P-F Study would verbally respond to experimental frustration in an Other direction, while those classified as having high frustration tolerance would respond in an Impunitive direction.

Theoretical consistency between the construct of frustration tolerance, and the measurement thereof, was maintained through utilizing the Rosenzweig Picture-Frustration Study as a means of operationally defining the concept. Thus, to the extent that one's total sum of Other responses on the P-F Study was large, he was classified as having low tolerance for frustration. At the same time, a low sum score of Other responses by a subject was taken to reflect a high level of frustration tolerance.

Based upon standardization data provided in the literature, eighty-nine graduate female nurses were administered the P-F Study in group form, and subsequent Other scores tabulated for each. Test-retest, as well as scorer reliability was established to assure the statistical stability of the scores. From this original sample of eighty-nine subjects, twenty were selected from the extreme ends of the distribution of scores, thus assuring the widest possible discrepancy between high and low frustration tolerance levels. A test of mean difference substantiated that a true difference was obtained. The subjects were homogeneous with respect to three classification variables found to have influence upon P-F Study scores, namely, age, education, and socio-economic status.

The selected subjects were then subjected to experimental frustration incorporating two elements felt necessary

for frustration to be experienced, namely, ego involvement and extreme task difficulty. The former was made implicit by instructing the subjects in such a manner as to suggest that intelligence, nursing ability, and powers of concentration were directly related to performance on the experimental task. The latter was accomplished through modifying a pursuit-rotor psycho-motor task in such a manner as to render skilful performance virtually impossible. So as to further increase the probability of creating feelings of frustration in the subjects, the experimenter introduced a series of standardized punishing statements while the psycho-motor task was being attempted.

The subjects attempted the pursuit-rotor over five consecutive trials, each lasting a duration of fifteen seconds. At the termination of each trial, the subjects were required to respond with a complete verbal sentence. Quite unknown to the subjects was a concealed microphone and tape recorder which recorded their verbatum verbal responses, both elicited and spontaneous. In this manner, the subjects' elicited verbal statements became the dependent variable under consideration.

Two raters made independent judgments as to the direction of aggression (Impunitive or Other) expressed by each of the subjects for each of the five trials. Following a one week time interval, the raters again made judgments

of the recording in a like manner. Since five separate statements were elicited from each subject and subsequently judged by each rater, the determination of which direction classification within which any one subject fell was made on the basis of the majority of one direction over the other. Thus, three or more verbal responses judged to be in one direction qualified the subject for being identified with that direction. Rater reliability was established between (1) $rater_1$ and $rater_2$, (2) $rater_1$ and himself, and (3) $rater_2$ and himself. All coefficients of reliability were significant at the .01 level of confidence.

The null hypothesis predicted no significant difference in verbal responses between high and low frustration tolerance. To test this hypothesis, as well as the two one-directional research hypotheses, essentially two statistical techniques were applied. In the case of the null hypothesis, a computation of Student's t ratio between the two directions of aggression of the dependent variable was made. With a t value of 3.41 ($P<.01$), the null hypothesis was necessarily rejected at an acceptable level of confidence.

To statistically test the two research hypotheses, a chi square analysis was applied. This analysis was based upon a two by two contingency table, incorporating the opposing frequencies of (1) subjects classified as high or low frustration tolerance (twenty each), and (2) subjects

responding in either an Impunitive or Other direction within the high and low frustration tolerance levels. By means of this method, a chi square value of 4.10 was obtained ($P<.05$). By inspection of the contingency table, it became clear that the first research hypothesis approached the level of acceptance, namely, that the subjects who demonstrated low frustration tolerance tended to verbally respond to experimental frustration in either an Extrapunitive or Intropunitive direction. At the same time, inspection of the contingency table also revealed that subjects demonstrating high frustration tolerance failed to verbally respond to experimental frustration in an Impunitive direction beyond what would be expected by chance alone. Thus, the second research hypothesis was rejected.

An analysis of the pattern of verbal responses elicited in terms of the sequence of the five trials revealed (1) a disproportionately greater frequency of Impunitive responses on trial number one, and (2) a disproportionately greater frequency of Other responses for trials two through five. This datum was illustrated diagramatically.

In terms of interpretation, attention was first drawn to the acceptance of the first research hypothesis. In this manner, Rosenzweig's frustration theory, as well as implications from developmental psychology and psychoanalysis, find support in the finding. In terms of the second research

hypothesis, however, the inconsistency with which the finding is related to Rosenzweig's theory demanded a divergent approach to interpretation. Among the possible interpretations of this finding were the (1) inadequacy of Rosenzweig's formulations regarding persons demonstrating high tolerance for frustration, (2) the possible unreliability of the Picture-Frustration Study at the upper extreme of distribution of Other scores, and (3) the possibility of those persons demonstrating high frustration tolerance possessing certain unique personality traits or characteristics which set them apart from their low tolerance counterparts in such a way as to account for their unpredictable behavior during experimental frustration. Specifically, the possibility of certain ego defense mechanisms, such as reaction formation and/or denial were entertained.

In terms of the analysis of the pattern of responding on the sequence of five trials, an interpretation was directed toward (1) an "additive effect" which accounted for the increase in Other responses, and (2) the possibility of unequal stimulus value afforded by the introduction of the punishing statements during each trial. The former interpretation was favored.

In light of the findings and interpretations offered, implications for future research were discussed. Among these were (1) an attempt to delineate Other responses into

their theoretical components, i.e., Extrapunitive and Intropunitive, and relating these two directions to levels of frustration tolerance, (2) the correlation of subjects' verbal responses to experimental frustration with those of a non-verbal nature, the latter including such indices as facial expressions, tremors of various body parts, general motor restlessness, galvanic skin responses, pulse and respiration modifications, and (3) an attempt to separate and subsequently correlate the direction of verbally expressed aggression on the basis of content with the direction of aggression as expressed in the subject's emotional or affective loading with which he expresses this content.

# BIBLIOGRAPHY


Freud, Sigmund, "Formulations Regarding the Two Principles in Mental Functioning", in Collected Papers, Ernest Jones (Ed.), New York, Basic Books, 1959, Vol. 4, p. 13-21.

In this paper, originally published in 1911, Freud briefly outlines his thinking regarding the co-principles governing human mental functioning, i.e., pleasure and reality. He attempts to relate the relative dominance of each principle in terms of their collateral influence upon the expression of normal as opposed to neurotic mental processes, and points up the importance these principles hold for understanding man from a genetic point of view.

The value of this rather classical example of one of the major tenets of psychoanalytic theory is seen in its parallel to the more contemporary approach of Rosenzweig, as reflected in the latter's delineation of basically two modes of responding to frustration.

Rosenzweig, Saul, "An Outline of Frustration Theory", in Personality and the Behavior Disorders, J. McV. Hunt, (Ed.), New York, Ronald Press, 1944, Vol. 1, p. 379-388.

Serving as the theoretical basis from which this thesis gained its impetus, this publication favors a holistic approach to the study of man's functioning. In pressing for this point of view, Rosenzweig attempts to interconnect divergent theoretical positions with his own thinking in such a manner as to yield for the reader a comprehensive exposition of man's reactivity to stress which affects his various levels of functioning, including cellular, autonomic, and cortical. In speaking of the importance of each of these levels in terms of reactions to stress, he further discusses such pertinent topics as a definition of frustration, types of stress which elicit frustration, reactions to frustration, and the concept of frustration tolerance.

Although certainly germane to this thesis, there is a striking lack of explicitness connected with the latter concept, particularly in regard to the manner in which it may be studied experimentally.

Rosenzweig, Saul, Edith E. Fleming, and Helen Jane Clark, Revised Scoring Manual for the Rosenzweig Picture-Frustration Study, Provincetown, Mass., Journal Press, 1947, 1-44 p.

A "technical manual", this publication contains information designed to assist the user in administering, scoring, and interpreting the Picture-Frustration Study.

Briefly presented is a theoretical rationale for the test, a section on general scoring procedures, a large section illustrating scoring problems, instructions regarding the P-F Study Record Blank, and closes with a section on interpretation. At the end of the Manual are reproduced revised norms for the Adult Form of the Study.

This Manual provided invaluable assistance in establishing criteria for both the scoring of the P-F Study Booklets, as well as for instructing the raters in their task of making judgments concerning the verbalized statements of the subjects.

Rosenzweig, Saul, "Revised Norms for the Adult Form of the Rosenzweig Picture-Frustration Study", in Journal of Personality, Vol. 18, 1950, p. 344-346.

This brief journal article provides adult normative data which supersede those cited in the above reference. Its relevance to this thesis comes from the influence it exerted upon this writer's selection of the sample for investigation.

Selye, Hans, "The General-Adaptation-Syndrome in its Relationship to Neurology, Psychology, and Psychopathology", in Contributions Toward Medical Psychology, Arthur Weider (Ed.), New York, Ronald Press, 1953, Vol. 1, xxviii-455 p.

In this expose of Selye's now famous theory of stress, the author cites a great amount of experimental and clinical literature which he considers as evidence in support of his theoretical formulations, which are outlined briefly.

The value of this source for this thesis is its insistence upon conceptualizing the Gestalt-like adaptation of the organism in times of stress. At the same time, Selye's concern with the organ systems of the body, as related to adaptation, is seen as a complement to Rosenzweig's emphasis upon ego-defensiveness, and the place of prominence it holds in his own theory of frustration.

## APPENDIX 1

## ABSTRACT OF

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## Direction of Verbally Expressed Aggression as a Function of Frustration Tolerance Level[1]

This research finds its impetus from a portion of Rosenzweig's theory of frustration, wherein one's relative level of tolerance for frustration is defined in terms of his propensity to direct aggression toward the environment (Extrapunitive), toward the self (Intropunitive), or attempts to minimize his aggressive response (Impunitive). For purposes of this study, the former two directions were combined (and subsequently designated Other responses), since they reflected a lowered tolerance for frustration, while the latter direction (Impunitive) was taken to reflect high tolerance. With this theoretical foundation, it was hypothesized that subjects classified as having low frustration tolerance on the Rosenzweig Picture-Frustration Study would verbally respond to experimental frustration in an Other direction, while those classified as having high frustration tolerance would respond in an Impunitive direction.

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1 William A. Sutton, doctoral thesis presented to the School of Psychology and Education of the University of Ottawa, Ontario, July 1964, vii-92 p.

Two groups of twenty, female graduate nurses, homogeneous with respect to age, education, and socio-economic status, were selected from the extreme ends of a distribution of Picture-Frustration Study scores based upon a larger sample of eighty-nine subjects. The forty subjects were subjected to experimental frustration consisting of five, fifteen second trials on a pursuit-rotor task of extreme difficulty level accompanied by punishing remarks from the experimenter. At the termination of each trial, the subjects were required to respond with a verbal statement of her choosing. The subjects' elicited and spontaneous responses were recorded by way of a concealed microphone and tape recorder. Based upon Rosenzweig's criteria of direction of expressed aggression, two raters independently judged the elicited statements of all subjects for all trials.

By way of Student's t ratio and a chi square analysis, it was found that (1) subjects classified as having low frustration tolerance verbally responded in the predicted direction, i.e., Other, (2) subjects classified as having high frustration tolerance failed to verbally respond in the predicted direction, i.e., Impunitive. The acceptance of the first research hypothesis was cautiously interpreted in light of Rosenzweig's theory, developmental psychology, and classical psychoanalysis. The rejection of the second research hypothesis was interpreted in terms of (1) the

questionable validity of Rosenzweig's theory, (2) the questionable reliability of the Picture-Frustration Study for subjects classified as having high frustration tolerance, and (3) the possibility of certain unknown personality characteristics which interfered with the predicted direction of subjects with high frustration tolerance. Implications and suggestions for future research in this area were discussed.