A STUDY OF CHANGES IN PERSONAL CONSTRUCTS
AS RELATED TO INTERPERSONAL PREDICTION
AND ITS OUTCOMES

Dissertation

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A STUDY OF CHANGES IN PERSONAL CONSTRUCTS AS RELATED TO INTERPERSONAL PREDICTION AND ITS OUTCOMES

Preface

The need for the construction of personality theory has become a major concern to many psychologists in the area of clinical and abnormal psychology. Although attempts at formulating theories about personality have always been part of the varied activities in the general realm of psychology, the extent and intensity of current interest in a formal approach is of fairly recent origin, dating, apparently, to the sudden prominence attained by clinical psychology during and immediately following World War II. One of the outgrowths of the impetus given thereby to the expansion and growth of clinical psychology has been a fairly general agreement on a crucial need for systematic theorizing.

An important issue in this regard has to do with the degree of comprehensiveness with which theory is to take into account the tremendous diversity of phenomena commonly subsumed loosely under the term "personality". With prediction and control as the ultimate goal here as in other scientific disciplines on the one hand, and in view of the great complexity of the subject-matter on the other, the temptation to attempt theorizing on an all-encompassing scale is very great. But experience and much thought have led many psychologists concerned with the need for theory to the conviction that at the present stage in the development
of the field, only miniature systems -- and the plural is emphasized -- are possible now.

The study herein reported was conceived within the framework of one such miniature system. This theory has been in process of explicit formulation during the past three or four years by Dr. George A. Kelly and members of the graduate student research team led by him at The Ohio State University. The study falls primarily under the heading of theoretical research, its origins and implications being only secondarily concerned with immediate practical issues in diagnosis and therapy. However, as further evidence is accumulated by way of studies such as this regarding basic theoretical issues, the utility of any particular set of findings for application to specific practical problems should become more and more apparent.

ACKNOWLEDGMENTS

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Acknowledgment is also made of the interest shown and generous assistance given by the instructional staff of Educational Psychology at The Ohio State University, headed by Dr. John E. Horrocks.
Chapter 1.
THEORETICAL ORIENTATION: THE PSYCHOLOGY OF PERSONAL CONSTRUCTS

General Statement

The Psychology of Personal Constructs within which the present problem was formulated is an ad interim personality theory whose basic postulate is: Mental processes evolve toward what the person construes to be optimal anticipation of events. Implied in this formulation is the assumption of a pattern or organization to mental processes. This pattern, called the construction system, undergoes continual, progressive change in the direction of optimal prediction — from the point of view of the individual — of events which he experiences. Stated most broadly, the postulate assumes that basic to the understanding of personality and the ultimate ability to predict and control behavior is knowledge as to (1) the content of individual conceptualization of experience, past and present, and (2) how this conceptualization functions in the service of anticipation of future experience. Thus, the theory places emphasis on the individual and his active contribution to his own experience, rather than on "forces", external and/or internal, conscious and/or unconscious, which impel him to be this or that kind of person, to behave in this or that way.

The term "mental" is intended to emphasize the uniquely psychological character of this approach to personality, as distinguished from approaches in which there is overlap with
the realm of physiology on the one hand, and that of sociology on the other. This is in keeping with the "miniature" nature of the theory. The term "mental processes" is also meant to convey the fact that this theory begins at a rather highly molar level of analysis, the unit variables "construing" and "anticipation", or "prediction" being complex, interrelated processes. In the following sections each will be discussed in some detail.

The Process of Construing

Construing is the process of attributing significance to, or investing with meaning, all events (objects, persons, situations, relationships, etc.) which the individual experiences. This is achieved by way of simultaneous differentiation and generalization. That is, experiencing at a given moment or through a time sequence a multiplicity of events, the individual sorts among them in such a way as to arrive at groupings in terms of perceived similarities and differences. This accomplished, the individual is said to have acquired a "construct".

"In its simplest context a construct is a way in which two things are alike yet different from a third . . . A construction system is an arrangement of constructs in which the common features of certain constructs are, in turn, recognized as separating them from other constructs within the system . . . Construing is not to be confounded with verbal formulation. A person's behavior may be based upon many interlocking equivalence-difference patterns which are never communicated in symbolic speech . . ." (22).

It is immediately apparent that construing, as here
conceived, is nearly identical to what has traditionally been known as concept formation. However, because of certain departures in this theory from the traditional approaches to concept formation, it has been deemed advisable to adopt the terms "construing" and "construct".

**Anticipation, of Prediction**

The individual is seen, in this theory, as dealing with experience in essentially the same way, if not as sophisticatedly, as the scientist deals with his subject-matter. That is, having arrived, more or less empirically, at a given set of conceptualizations, he uses his constructs in anticipating, in formulating predictions (hypotheses) regarding future experience. Specific subsequent events are then perceived as either validating or invalidating these predictions.

Expectancy and anticipation are seen as the keynote to the complexity and richness of human personality. The individual makes short-term predictions and long-term predictions; he verbalizes some, has no communicable symbols for others; he perceives some hypotheses as validated, others as invalidated. It is in these respects, primarily, that his individuality is manifested, granting a considerable degree of uniformity in the construings of different persons in the same culture. The individual, then, is constantly "laying bets" on future experience and the observer who wishes to understand this or that person's reactions to events must do
so in terms of an understanding of the nature of the latter's expectancies.

Viewing the human organism in this way, one refutes, in effect, a premise which underlies the thinking of many students of personality; namely, that the desire and search for "security" is the wellspring of all human behavior. The term "homeostasis" has been borrowed from physiology to describe the latter way of understanding behavior. But when attention is given to the fact that human beings "live in the future" in the sense of constantly holding expectancies at some level, it seems evident that no individual can be wholly "secure"; only the complete absence of anticipation of any sort and at any level could be called "security". The writer recalls the remark of a student seen in psychotherapy to the effect that if becoming well meant he would have to forego all measure of uncertainty -- that is, if he could achieve "security" only at the cost of all "insecurity" -- he did not want to get well.

In the same sense, then, that the scientist "sticks his neck out" in the form of experimental hypotheses in order to achieve his scientific goals, the private expectancies of every individual are continually being put to the test of experience -- albeit less deliberately than in the case of the scientist -- in the course and service of "making sense" out of life.

Before discussing in detail the specific issues in this
point of view with which the present investigator was concerned, and the hypotheses derived therefrom, a review of the literature on some topics related to "construing" and "prediction" will be presented.
Chapter 2.
REVIEW OF THE LITERATURE ON RELATED TOPICS

The Psychology of Personal Constructs suggests, in effect, that it may prove fruitful to approach our study of personality by way of certain concepts which have heretofore occupied a relatively minor position in the hierarchy of psychological concepts. Specifically, instead of viewing the so-called cognitive processes, particularly concept formation, as merely a group of relatively isolated and particularly difficult-to-measure psychological phenomena, it is suggested they be broadly redefined and assigned preeminence, on an ad interim basis, in the approach to the study of personality.

Cognition

Some general comments regarding the "cognitive processes" are in order. As Grant (11) has pointed out in his review of Leeper's chapter in the recent edition of the Handbook of Experimental Psychology (25, p. 172): "Most psychologists have had trouble with the cognitive processes . . . There is a paucity of sound experimental literature on the topic . . . ." Partly, of course, the neglect of these processes may be attributed to the difficulties one encounters in applying operational principles to the study of variables as generally ill-defined as these. This does not, however, answer the question as to why they have not been better defined, why there continues to be disagreement, for example, on "what
problems, when presented to a subject, do or do not study behavior which can be called thinking" (49). The writer suspects that the explanation lies partly in the historical linkage of these processes to some of the problems with which speculative philosophy has always been concerned. That these phenomena appear to be in disrepute as proper subjects for psychological study suggests to the writer that dualism has not yet been eradicated from the philosophical underpinnings of psychological thinking, that it has merely "gone underground"; i.e., the "mental" is still being contrasted implicitly with, say, the "behavioristic."

Apart from speculation as to the reasons for the paucity of experimental work on the cognitive processes, there is apparently a growing recognition that the area does deserve more attention. Heidbreder (15), for one, states:

"It has been customary in psychology for the last two or three decades to emphasize the non-cognitive determinants of behavior, and indeed, the non-cognitive determinants of the cognitive processes themselves. This emphasis was sorely needed and the facts to which it called attention must be recognized in their full impressiveness. But they must not be permitted to obscure what is also a fact—that cognitive processes have their special and positive function in the adaptation of the organism to an environment which it cannot completely transform to suit its own preferences; that in performing their function cognitive processes are capable of considerable resistance to non-cognitive demands; that there are limits beyond which perceptual and even intellectual processes cannot be pushed if the organism is to survive in the world and the society in which it finds itself. A dynamic psychology would give an incomplete and distorted account of human behavior if it ignored or minimized
the problems arising from this situation . . . It is neither impossible nor unreasonable to define dynamic psychology as including all the psychologically significant determinants of behavior. If this definition were accepted, dynamic psychology would take as its subject matter, not a selected class of psychological processes, but all psychological processes considered from the standpoint of its special problems . . ."

Arguing within a more specific context, Leeper asserts that "our greatest need (with respect to research on deductive concept formation), perhaps, is to start with an empirical investigation of the kinds of deductive thinking people use in actual life . . . Such ecological studies of deductive thinking may not seem to be part of experimental psychology in the narrow sense, but it is probably safe to predict that investigations of this sort would soon lead to really significant experimental problems." (25). (Incidentally, the present writer disagrees that experimental investigation in this area must wait on the accumulations of purely ecological data, since the issue appears to be not one concerning the form that investigations should take, but one concerning the selection of problems to be studied.)

Following a review of the literature regarding, specifically, the role of consciousness in cognition, Leeper concludes that "definitions of cognitive processes in terms of the functional properties of psychological processes would not coincide with definitions of cognitive processes as conscious states" (p. 732), and proposes the following
broadened definition (p. 736):

Cognitive processes include all the means whereby the individual represents anything to himself or uses these representatives as a means of guiding his behavior.

This is certainly a broad definition, and from it follows logically Leeper's position that much of the whole field of learning can be subsumed under the cognitive processes. As such, it represents at least indirect support of the theoretical orientation underlying the present study.

"Abstract" and "Concrete" Thinking

"Thinking" is an example of the kinds of topics, referred to in the previous section, which have been dealt with in relative isolation from other topics in the psychological realm. There have been a few programs of research in the area, such as the work on reasoning by Maier (28-31), and some systematic investigation of the specific issue of "abstract" versus "concrete" thinking, to be discussed below. And recently Underwood (49) has suggested an orientation toward systematic research on thinking in terms of current learning theory. By and large, however, the area has remained unintegrated into either learning theory of personality theory in their broader aspects.

In view of this lack of attempts at integration through theory, it is perhaps not surprising that such work as has been done in the area manifests a relative lack of variety in ways of conceiving issues and formulating hypotheses
regarding thinking. Thus a certain one-sidedness may be seen in the emphasis which has been given to describing thinking in terms of "conceptual levels," an orientation which enjoyed unquestioned regnancy until McGaughran painstakingly demonstrated (32) the potentialities of a different orientation in the service of theoretical integration.

The contributions of such workers as Goldstein, Weigl, Vigotsky, and Rapaport -- to mention some of the most prominent names in this area -- are not by any means, however, to be disparaged. Indeed, it has been the adaptation of an instrument developed for their purposes which has provided the Psychology of Personal Constructs with its very useful diagnostic, therapeutic, and research tool, the Role Construct Repertory Test. Moreover, McGaughran's study itself would not have been possible without the conceptual groundwork laid down by the investigators of abstract and concrete thinking. Accordingly, a summary, drawing heavily on McGaughran's exhaustive review of these contributions, is presented below.

The work on abstract thinking has been directed at distinguishing conceptual processes to be regarded as characteristic of particular groups, i.e., brain damage patients, schizophrenics, and children, as contrasted with each other and with normal adults. These distinctions have been drawn in terms of "conceptual levels," dichotomized by Goldstein
(9, 10) as "abstract" versus "concrete" and trichotomized by Rapaport (34, 35) as "abstract," "functional," and "concrete." Bolles (3) differentiates four levels in terms of the relationships between the elements included in a conceptual context, ranging from "identity" through "partial identity" and "co-functionality" to "categorical similarity." Although this extension of Goldstein's original approach approximates a description of a continuum, Goldstein's use of two levels which are mutually exclusive and have separate criteria -- i.e., are qualitatively different -- has apparently been most generally accepted. In brief, Goldstein holds that thinking is either abstractive, in degrees varying with the complexity (i.e., relative presence of consciousness, volition) which a given performance involves; or it is concretistic, in degrees varying with the number of particular stimulus properties to which the individual attends in forming a concept. Patients with brain damage, for instance, characteristically show the "concrete attitude." They are "given over passively and bound to the immediate experience of unique objects or situations . . . thinking and acting are determined by the immediate claims made by the particular aspect of the object or situation . . ." (10, p. 6). The "abstract attitude," characteristic of the normal adult, entails the transcending of "the immediately given aspect of sense impressions . . . Our actions are determined not so much by the object before us as by the way we think about them; the individual thing
becomes a mere accidental example or representative of a 'category'."

Details regarding the comparisons which have been made between clinical groups and/or developmental levels by Weigl (51), Thompson (46), Bolles and Goldstein (4), and Bolles, Rosin, and Landis (5), Cameron (7), and Hanfmann and Kasanin (13) are not essential for the present purposes. The important point to be made is that all of these studies have involved detailed analysis of the nature of conceptualization and, as such, have provided a framework of concepts and techniques in the area. The development by Vigotsky (50) of a test based on a procedure originated by Ach (1), for the purpose of experimental investigation of the thinking of pre-adolescents and schizophrenics, is one of the chief accomplishments in this area. It requires the sorting of objects under standardized conditions such that the experimenter can elicit data regarding the processes by which concepts are formed, as well as permitting the categorizing of conceptualization in terms of conceptual levels. Several adaptations of this procedure have been developed for a variety of purposes, including the use of pictures in the Horowitz Faces Test, and the use, by Rotter and Jessor (39) of figures from the M.A.P.S. test. The particular adaptation developed within the framework of the Psychology of Personal Constructs will be described in the final section of this chapter.
On the basis of preliminary attempts to set up a design for testing the relationship of language behavior to "conceptual levels", McGaughran (32, p. 224) came to the conclusion that "the concept of 'conceptual levels' . . . could not be adapted to meet the requirements of universality and dimensionality . . . (considered) necessary for the formulation of personality theory." He rejected the Goldstein dichotomy "abstract-concrete" in favor of a dimensional approach involving the postulation of "conceptual areas" demarcated by the intersection of the dimensions "conceptual communicability" and "conceptual freedom." The data which he accumulated and analyzed within this framework supported the hypothesis that "that group of conceptual behaviors collected under the term 'concretism' to identify a non-abstract 'conceptual level' can be demonstrated to be more economically ordered to occur in two 'conceptual areas'." With this, McGaughran provided a basis for approaches to conceptualization which meet modern requirements of systematic theorizing in the field of personality.

Concept Formation

Interest in "concepts" is as old as philosophy. It was apparently in the attempts to define the nature of reality that the notion of "concepts" was born. The early attempts, by way of Plato, Socrates, the Stoics, the Epicureans, etc., centered around describing the relationship of "universals" to "particulars", and there ensued much controversy over
this issue until near the end of the Middle Ages. In about the 16th century there occurred a "decline of interest in the question as to whether universals are independent substances and an increase of interest in the question as to the sort of material of which concepts are made (43).

"Concepts", like other now-psychological constructs, continued to be part of the realm of philosophy until experimental psychology of the 19th century, abetted by the new doctrine of biological evolution, redefined the issue in terms of complex modes of adjustment. In spite of the recognition of complexity, however, the psychology of that period characteristically atomized the processes denoted by "concept formation" and proceeded with much detailed experimentation on, for example, the relationship of imagery to generalization. And in spite of the redefinition in terms of "modes of adjustment", the early studies were structure- rather than function-oriented. The work of Fisher (8) is a case in point. Later, particularly in the work, for example, of Piaget on the thinking of children (33), the emphasis was more on process in the sense that not the content of, but methods for arriving at, concepts was the focus of interest. By and large, a clear-cut distinction between the process and its products has continued to prevail, the emphasis in research being given to the former. In the final section of this chapter, it will be shown how the Psychology of Personal Constructs represents a departure from both the historical
and the current conventional orientation to concepts and concept formation.

In line with present-century developments in the philosophy of science and, in turn, with increased sophistication regarding research techniques in psychology, methodology has become a more important issue. The contributions of Smoke (40-42) and Heidbreder (15-17), who are among the few who have carried out extensive programs of "pure research" in the area of concept formation, are examples of the current trend. Both have pointed out the importance, for example, of clarifying the experimental criteria for the learning of concepts. Smoke (43) has proposed the general criterion of "the consistency with which . . . (the experimental subject) is able to make symbolic responses that differentiates the members of the class of stimulus patterns in question, or an aspect of that class, from other stimuli." Heidbreder, going much further in advocating the operational approach, defines concept as a "logical construct which, through signs or symbols or both is transferable from situation to situation and communicable from person to person" (15), and goes on to assert:

Thus, concepts are not the subject matter investigated in psychological research; they are among the means by which certain psychological activities may be investigated. An experimenter introduces concepts into the experimental situation in the sense that he arranges the experimental conditions with respect to them . . . Procedure, apparatus, kinds of observations and measures employed are determined by the concepts used.
From this standpoint, "attainment" of a construct is defined by the first occurrence of behavior by the experimental subject which conforms to certain statistical criteria; the subject is said to be "using" a concept "whenever, during the course of the experiment, (he) produces behavior meeting accepted criteria (a set of specifications for identifying behavior which can be made intelligible to an observer if he supposes that the subject is reacting to those characteristics of a situation to which the concept in question refers) . . . The reactions referred to (by the terms "conception", "conceptual reaction", "conceptual behavior") are . . . defined as the determinants of the overt conceptual behavior, as conceptual."

In general, it appears that clinical interest in concept formation has outrun "pure research" interest in this phenomenon. The literature in this area has been discussed in the previous section of this chapter. Although this work has yielded, as has been pointed out, what is turning out to be a valuable experimental device when adapted to other purposes, its relevance to broad issues in psychology, generally, and to personality, particularly, appears quite limited.

There is at least implicit agreement among all writers on concept formation as to the rough form of the process denoted by the term. That is, concept formation consists of the perceiving of, and reacting to, similarities -- i.e., common essential qualities -- within a context. All writers
refer to the context as consisting of "stimuli", i.e., objects and/or their properties, in the perceiver's environment. The perceiver develops a symbolic response which may or may not be linguistic to the contextual elements which, having been differentiated within the whole, are perceived as resembling each other in some way. This symbol, the "concept", is sometimes referred to as an "abstraction", sometimes a "generalization", and sometimes a "general abstraction" (8).

Smoke has taken issue (40) with a purely seeing-of-common-elements definition of concept formation on the ground that this is an oversimplification of the process. He holds that by way of generalization, concept formation involves synthesis, not merely "a closer approximation to some bare 'common element'.'"

So far as specific characteristics of the process are concerned, there has been some research relative to the nature of the perceiving involved in concept formation. A review here of the perceptual theories and findings by way of Gestalt psychology, for example, would carry this discussion far beyond relevance to the present orientation. It may appropriately be indicated, however, that the figure-ground relationships which have been investigated under the aegis of Gestalt theory would seem to be related to the issue of the relative roles played by positive and negative instances (see below) in concept formation. However, the
writer has not encountered in the literature any attempts to integrate the Gestalt findings with those of studies on concept formation.

Smoke (41) experimentally compared the forming of concepts from a group of stimulus patterns composed only of positive instances -- i.e., members of the concept realm in question -- with the effects created by the inclusion of negative instances -- i.e., not members of the concept realm in question -- and found that "although they (negative instances) may not make for rapidity in learning they tend to make for accuracy, especially in the case of difficult concepts. It appears that in so far as negative instances assist concept learning they do so largely because of the way in which they prevent the learner from coming to one or more erroneous conclusions while he is still in the midst of the learning process."

It is interesting at this point to note that nowhere in the literature to date is there evidence of a recognition that the perception of similarities logically and inevitably implies the simultaneous perception of differences; i.e., that it is impossible to see two or more things as alike in some way without thereby also at least implying a difference between them and something else. It seems reasonable to guess that this failure to note a necessary duality to the process of concept formation is both a cause and an effect of the particular methods which have been employed in studying
the process. Furthermore, the early mooring of concept formation in a psychology of consciousness probably also has something to do with it; if, by reason of the experimental criteria for the attainment of a concept or of the instructions given to the subjects, perceptions of similarities are the only data recorded, it stands to reason that the simultaneous perception of differences remain unverbalized, or even "unconscious."

Expectancy, "Hypotheses", and "Learning Set"

The literature abounds with reports of studies, and discussions of issues, relating to the concepts of expectancy, "hypotheses", and "learning set" as applied to phenomena subsumed under "learning". In the following discussion these topics will be dealt with only in very broad outline, inasmuch as the present orientation deviates markedly from the conventional learning approach and the details of the latter are, therefore, not relevant.

A clear and explicit schism exists between two kinds of learning theories. Hilgard (18) characterizes one category as associationistic and the other as field theories, and contends that, attempts at reconciliation between them notwithstanding, the twain have not met. The associationistic theories include the S-R approaches, epitomized in the work of Hull and his followers; the field theories include contemporary "cognitive" systems, championed, for example, by Lewin and Tolman. The former are committed to an essentially
physiological explanation of learning, i.e., in terms of "need-reduction", and they hold the Thorndikian principle of effect as the central variable to account for learning. The latter, seeking explicitly to encompass complexities of human behavior not dealt with by the associationists, accord considerable weight to symbolic processes and expouse expectancy as their central construct.

One current attempt to utilize the advantages of each position while circumventing their respective difficulties is the Social Learning Theory being formulated by Rotter (37, 38) and his students. This attempt is being made by way of a two-factor principle of reinforcement: both satisfaction (effect) and expectancy are seen to account for learning through reinforcement. Satisfaction and expectancy are postulated as the products of previous learning experiences, and new learnings are seen as a function of the reinforcement, negative or positive, both of learned satisfaction and of learned expectancies.

It is solely, of course, by way of the "cognitive" theories that concepts and issues relevant to the present problem have emerged. Tolman (47, 48) for example, observing what appeared to be anything but automaton-like behavior in rats running mazes, conceived the notion of "cognitive maps" in the organism; i.e., symbolic intra-organism patterns representative of stimulus relationships in the environment. These representations he called "sign-gestalt expectations."
In contrast to the S-R approaches which view behavior solely in terms of response to physical and physiological stimuli, Tolman was suggesting, in effect, that behavior be understood in terms of response to symbolic stimuli. Similarly, Lewin (26), asserted the importance of taking into account "the subjective probability with which the individual views the present or future state of affairs . . ." (italics the present writer's), thus also emphasizing the intra-individual symbolic contribution to behavior.

The phenomenological point of view, hinging almost wholly on perception as such and represented by such writers as Snygg (44), Snygg and Combs (45), MacLeod (27), and Krech and Cruthfield (23), has also contributed to the discussion in this area and has led to fruitful experimental attacks on some basic problems. Krechevsky's study, reported in 1932, on "hypotheses" versus "chance" in discrimination learning (24) demonstrated conclusively the operation of a non-mechanistic principle in learning. The notion of "hypotheses", or systematic, as distinguished from random, attempts at problem solution, has since been invoked in problems ranging from sensory discrimination in rats through concept formation in human adults. The use of the term "hypotheses" to describe the phenomenon implies, of course, the notion of a particular kind of cognitive guiding of behavior.

Still another conceptual contribution to this general orientation has been the concept of "learning set", arrived
at by Harlow (14) by way of experiments on discrimination learning in monkeys. These experiments have indicated that monkeys -- and presumably, also, human beings -- learn not only to make specific discrimination, but they learn how to learn to discriminate; i.e., they learn a process or method which is transferable from problem to problem. This learning about learning, which Harlow calls the acquisition of a learning set, is seen to account for the rapidity -- often requiring only one trial -- with which a monkey solves a discrimination problem after having solved a series of similar problems. From the standpoint of the present orientation this learning to learn may be interpreted as a cognitive process.

One specific feature within the expectancy approach which has received attention in the literature should be mentioned. The term "subjective probability" appeared in the quotation from Lewin cited on page 23. ("Probability" refers, of course, to degree of certainty or expectation regarding the occurrence of an event.) There has been some controversy regarding the distinction between, and relative roles of, "subjective probability" and "objective probability". Brunswik (6) has emphasized the "objective", for which he has been criticized by Lewin on the ground that it is the events of the individual's lifespace, not his geographical-physical environment, which constitute the data for
psychological prediction. Thus, even within agreement on an expectancy framework, the old problem of assessing the relative contributions to behavior by the individual and the environment rears its head. Brunswik (6) admits, however, that "one of the comparatively neglected tasks of a molar environmental psychology is to find out the extent to which environmental hierarchies of probabilities of object-cues as well as of means-end relationships do find a counterpart in similar hierarchies of evaluation by the organism."

The writer ventures the prediction in passing that should this problem receive the investigation Brunswik suggests, the followers of the Brunswik approach would seize upon such correspondence between environmental and intra-individual probabilities as would be found; and that phenomenologists would seize upon the discrepancies. For, regardless of the actual extent of correspondence, the real question would be how to interpret and use such findings, and in the view of the present writer, it would be the analysis of discrepancies which would prove most fruitful in leading to the improvement of prediction in individual cases.

To return to expectancy, hypotheses, and set for their relevance to the present orientation, the following summary by Hilgard (18, p. 276) clarifies the way in which these concepts are used by expectancy theorists:

"The following aspects are all relevant (to the conception of expectancy): (1) The organism brings
to a problematic situation various systematic modes of attack, based largely on prior experiences. (2) The cognitive field is provisionally organized according to the hypotheses of the learner, the hypotheses which survive being those which best correspond with reality, that is, with the causal texture of the environment. These hypotheses or expectancies are confirmed by successes in goal achievement. (3) A clearly established cognitive structure is available for use under altered conditions, as when a frequently used path is blocked. This availability of cognitive structure distinguishes it from habit strength, for which transfer possibilities are limited." (Italics, the present writer's.)

Thus it is evident that among a sizable group of psychologists, representing a variety of theoretical orientations, attention is being given to the anticipatory character of behavior, be it called "expectancy", "hypotheses", or "learning set". It is by way of this general emphasis that the focus in a large part of the literature on learning coincides with the focus of the Psychology of Personal Constructs. The way in which the latter deviates within this commonality will be discussed in the next, and final, section of this chapter.

Recapitulation in Terms of the Psychology of Personal Constructs

A summary of the similarities and differences between the approaches used in the Psychology of Personal Constructs and those covered in the preceding section will conclude this chapter, as follows:

1. Construing (concept formation) is central to the Psychology of Personal Constructs. It is postulated as one
of the basic processes in terms of which personality is to be understood. This is in contrast with (a) the view which holds concept formation in relative isolation as a psychological phenomenon, and (b) with the view which constructs personality theory in learning terms.

2. Following from the above, this view rejects the assertion that "concepts are not the subject matter investigated in psychological research" (15). On the contrary, not only conceptual activity, but also the content, patterns, and functions of its products, -- i.e., concepts -- are studied in the attempt to understand personality. This means that in experimentation within this view, instead of introducing concepts the "attainment" of which constitutes the experimental task, the experimenter introduces a particular experiential context (e.g., a list of persons provided by the subject himself); the experimental task consists of verbalizing the concepts which constitute the organization or structure which the subject imposes on this context. Thus, the experimental objective is usually to elicit extant and individual concepts, rather than to require the formation of new, experimentally-defined ones.

3. The scope of the term concepts is broadened not only to include but to emphasize personal concepts, i.e., those acquired through interpersonal experience and having intra-personal relevance. This is in contrast to the limiting of the study of concepts and their formation to contexts
involving inanimate "stimuli" in the individual's environment. Personal constructs are elicited by requiring the subject to sort among people in relation to whom he has played and/or does now play a social role; hence, the full title of one of the test instruments used, the Role Construct Repertory Test.

4. In agreement with recent redefinitions of cognition, the Psychology of Personal Constructs rejects "consciousness" as a necessary component of conceptual activity. The person may or may not be aware of the content of his constructs, the means by which he arrives at them, and the fact that he uses his constructs adaptively. Indeed, it is likely that awareness occurs only under such special conditions as therapy and while serving as an experimental subject.

5. The present approach holds, with McGaughran, that individual or group differences in conceptualization need not be categorized according to qualitative distinctions. Rather, they may be ordered dimensionally, and individual patterns of conceptualization may be described with respect to a number of dimensions. (This is an aspect of Personal Construct Theory which remains to be worked out.)

6. Account is taken, in the description of construing, not only of perceived similarities but also of perceived differences, the latter also constituting important psychological data. No construct exists without a contrast. Indeed, it is often precisely the individual's failure to
verbalize the "opposite" of a verbalized construct which provides the clinician with his most crucial cues for diagnosis and therapy.

7. The anticipatory character of human behavior -- a feature which is receiving widespread and growing attention in several theoretical orientations -- is in the forefront among the basic premises of the Psychology of Personal Constructs. It is seen not merely as a variable, but is postulated as one of the two basic and universal processes in terms of which personality is to be understood. The investigation to be reported was conceived wholly in terms of the important role which anticipation, or prediction, is postulated to play.
Chapter 3.

STATEMENT OF THE PROBLEM AND PRELIMINARY HYPOTHESES

To summarize briefly the theoretical background for the present study, it will be recalled that the Psychology of Personal Constructs focusses at its starting point on the phenomenon heretofore referred to as concept formation, revises the definition so as to take explicit cognizance of its dual nature -- the simultaneous perception of similarities and differences -- and extends its application as a construct from a limited role in a psychology of cognition to the basic role in a psychology of personality. From this point of view, the process is seen as "construing", its products as "constructs", and the pattern of its products which is unique to any person as the person's "construction system".

The fundamental postulate of the theory, it will be remembered, is that the individual's construction system is continually undergoing change. It assumes, further, that the direction taken by changes is, universally, toward what the individual construes, in turn, to be optimal anticipation of his experience.

The general questions which the present investigator was interested in clarifying were: (1) What, specifically, is the functional relationship between construing and prediction? and (2) What are the conditions, in terms of this
relationship, with which progressive changes in the construction system are associated?

The first question is essentially a logical one, involving the assumption that one may usefully distinguish between these two processes at the same time that they are seen as intimately related in a logical way. The second question involves the further assumption that construing and prediction are crucial to the occurrence of changes in the construction system in the sense that they both account for, and set limits upon, change. Following some elaboration of these points, the hypotheses which were formulated preliminary to the pilot study will be presented.

**Construing and Prediction**

It has been stated that construing involves, on the one hand, the simultaneous abstracting of similarities and differences from an experiential context, and, on the other, the generalization and enrichment of constructs so formed. It may be added that construing may be predominantly inductive or predominantly deductive at a given moment, but always involves some of both. Reichard and Rapaport suggest (35) that the relationship of deduction and induction in efficient concept formation is one of steady alternation. This distinction between inductive and deductive concept formation is not, however, important for the present purposes.

Prediction, in most general terms, constitutes the
adaptive function toward which construing is aimed. That is, if construing is the attributing of meaning to events -- the creation, as it were, of categories, each symbolically represented by an implicit or explicit generalized abstraction -- then prediction is the utilization, or invocation, or previously-attributed meanings in dealing with on-going experience. Thus, for example, one has attributed the meaning "kindness" to certain behaviors of other people and one "understands" as "kind" those people who show those behaviors. In the early stages of "getting to know" a stranger who initially shows some of the behaviors which are elements in the "kindness" context, one labels him a "kind" person, thereby implicitly predicting that he will -- in one's future experience with him -- continue to show those initially-observed behaviors subsumed by "kindness", plus, perhaps, other behaviors which are elements in the context of that construct.

To predict, or to anticipate, experience is to "make sense" out of what would otherwise be intolerable chaos. Granting limits to the human organism's responsive capabilities, the welter of events which he is capable of experiencing at any moment is very great. Construing and prediction are his methods for coping in an organized way with experience. As Humphrey has put it (19, p. 212): It is . . . concepts that give thinking the power to deal with (the)
everchanging environment. Without them . . . the world would be . . . so completely different from day to day that (one) could probably no survive at all . . ." Prediction, then, is the means by which this power is put to use.

The making of a prediction is inevitably followed by one of three possible consequents: evidence in support of the prediction, evidence counter to, or refuting, the prediction, or no evidence at all. (One may, of course, consider outcomes in terms of degrees of each of these; i.e., as continua; but for the purposes of this discussion and practical handling in the research they are being dealt with here as categories.) To use a rough analogy: one bets that a certain horse will win, place, or show; subsequently, (1) the horse does either win, place or show, (2) he neither wins, places or shows, or (3) the race is not run.

In the realm of psychological events there are, conceivably, frequent occurrences analogous to the third possibility just mentioned. For present purposes, however, the concern is only with the relationship of possibilities (2) and (3) — i.e., the "rightness" and "wrongness" of prediction — to changes in constructs. These outcomes will hereafter be referred to as "validation" and "invalidation", respectively.

It should be pointed out that in individual cases outcomes of prediction are themselves subject to construing.
At this point, however, the Psychology of Personal Constructs crosses from the so-called idiographic to the so-called nomothetic; by postulating construing and prediction (also, by implication, the outcomes of prediction) at a high level of generality, the conceptualization of "validation" and "invalidation" in a nomothetic sense is wholly consistent with the otherwise "idiographic" tone of the theory. (The reader is referred to Kelly, pp. 23-27 for elaboration of this issue.)

To summarize the foregoing, it may be said that construing and prediction are functionally interdependent in the sense that predictions are made on the basis of previous construings and that the consequents to prediction are themselves matters of construction. This circularity in the logical relationship between the two processes circumscribes the extent to which "mental processes evolve". That is, there are logical limits to changes which can occur. This point has been made very nicely in other terms by Bateson and Ruesch (2, p. 200):

"... An individual can -- of necessity -- perceive his own life and actions only in terms of his own system of codification-evaluation. He is, in all cases, unable to perceive the characteristics of the system in terms of which he perceives."

It should be emphasized that this point in no way contradicts the assumption in the basic postulate of the Psychology of Personal Constructs that "mental processes evolve";
it merely sets logical limits to the amount of change which can be expected to occur. The writer feels that recognition of the existence of limits to the possibilities of change might do much to alleviate the frustration that is often experienced when therapy, teaching, and other attempts at effecting changes in people are construed as "failures".

Granting at the outset that there are limits to the amount of change which can occur, the question remains, how are construing and prediction-and-outcomes related to such changes as do occur? This is the question with which the present investigation has been concerned. In view of the intimate logical relationship between the two basic processes, it is obvious that the procedure for investigating the relationship of changes in constructs to these processes requires holding either construing or prediction-and-outcomes constant while varying the other. If one elects to hold construing constant, one may formulate two kinds of hypotheses: (1) regarding the relationship of prediction per se to change, and (2) regarding the relationship of outcomes of prediction to change. The testing of such hypotheses would thus consist of (a) eliciting extant constructs, (b) requiring, as the experimental task, that subjects invoke some of these constructs in making predictions, (c) providing subjects with "evidence" regarding the outcomes of their predictions, and (d) testing for change among the constructs initially elicited. This is precisely the line which was
followed in the investigation to be reported.

**Preliminary Hypotheses**

**Hypothesis A:** Changes in constructs from one time to another will occur with greater frequency among constructs employed in prediction in the interim than with respect to other constructs.

(This states, in effect, that unless a construct is invoked for prediction -- i.e., is "put to the test" -- it is not likely to change.)

**Hypothesis B-1:** Changes in those constructs which are employed in subsequently-invalidated prediction will most frequently take the form of replacement by their opposites or contrasts.

**Hypothesis B-2:** The effects of invalidation on personal constructs will be more marked with respect to those predictor-constructs which are members of a major primary constellation than with respect to other predictor-constructs.

(These hypotheses specify the nature of changes under the condition of one of the two outcome categories, namely, invalidation.)

**Hypothesis C:** The invalidation of prediction based on specific personal constructs will lead to greater variation in later use for prediction among constructs which are invalidated the first time than among constructs which are validated the first time.

(This hypothesis compares the different effects of different outcomes of prediction upon subsequent prediction.)

These hypotheses are only a few of a potentially large number which might have been formulated in a first approximation to a set of fixed experimental hypotheses. As it
turned out in the pilot study, B-1 and B-2 proved impractical to test, A and C were re-formulated, and a new hypothesis was added. Nevertheless, the hypotheses as stated above proved useful in setting up the pilot research, which, in turn, provided valuable cues in formulating and designing the fixed research. For these reasons the pilot study will be described in detail.
Chapter 4.
THE PILOT STUDY

Introduction

The pilot study was carried out in the Winter of 1952 and served as a means for developing and refining the experimental instruments and procedures employed in the fixed research, carried out during the Spring of 1952. Following a description of the pilot population, the initial development of criterion and test instruments, manipulation of the experimental variables, and analysis of results, the final section of this chapter will describe the revisions which were indicated preparatory to the fixed research.

Subjects

For purposes of studying the particular kind of problem in which the writer was interested, enrollees in an undergraduate course in Educational Psychology at The Ohio State University seemed an especially desirable experimental population. It was felt that for obtaining data which would have maximal generalization value within the limits imposed by (1) the theoretical nature of the problem and (2) the practical necessity of using college students, the content and classroom procedures characteristic of this particular course lent themselves especially well to the study. To begin with, there was considerable homogeneity in the educational objectives of enrollees in the course; most of them were planning to become teachers. This made the development of one of the
necessary research instruments a relatively easy matter in terms of uniform interest among the subjects. Secondly, the fact that much group discussion, interpersonal interaction via joint projects, and a generally permissive atmosphere prevailed, meant that the subjects had as much opportunity to get to know one another as could be expected in a classroom situation. This would be important for purposes of effective manipulation of the experimental variable — validation-invalidation — as will be evident below. Furthermore, use of this class would represent an approximation to "real-life" experiences such as would not be the case among, say, participants in group therapy. This would have value from the standpoint of the normative generalizations toward which the research was directed.

Accordingly, and with the cooperation of the instructional staff, the pilot population was drawn from three sections of this course. Forty-six students volunteered for the experiment, of whom twenty-five provided a complete set of data. The other twenty-one discontinued half-way through the experiment. Eighteen of the twenty-five who completed were female, seven were male.

**Instruments**

*The Role Construct Repertory Test (RCRT)*

An adaptation of the original Group Form of this technique (22, pp. 136-138) was constructed. To describe the
general technique briefly: A list of "Role Titles" is presented, each title being a description of the role played, in the past or present, by a particular person in relation to one's self; e.g., "Your mother", "A teacher you liked", "Your best friend in high school", etc. The subject writes down in sequence the name of each person who fits the title. He is then given these names in pre-arranged groups of three at a time, with the instruction to sort among each trio according to "what outstanding way two of these three people are alike and at the same time different from the third." He writes down a description of the similarity in one or a few words, this description being a category of meaning, a "personal construct". The term describing the way in which the dissimilar person differs from the other two is also recorded and called the "contrast", or "contrasting construct".

It was desired to adapt the Group RCRT in such a way as to yield a predominance of constructs descriptive of peers, since such constructs would be most relevant to the experimental task. Accordingly, in the list of 30 role-titles drawn up, 19 were descriptions of peers, including siblings. Since, however, some degree of generality of the subject's construction system beyond his peer constructs was also desired, a few titles involving parents, authority figures, etc., were included. A copy of the Role Title list used in
the pilot study is presented in Appendix B, p. 103.

With regard to the form on which subjects were to record constructs and contrasts, the particular groupings of names, represented in each item by three numbers, were also selected on the basis of maximizing the production of constructs relevant to the experimental task. The numbers corresponding to the names of non-peers were less frequently included in the items than were the peer numbers, although care was taken not to include any one number with undue frequency.

The "Situations Questionnaire"

A "questionnaire" was constructed consisting of ten multiple-choice items involving issues relevant to the content of the course. Each item was comprised of a description of a more-or-less critical interpersonal situation in which a teacher might some time find herself, followed by a number of alternative verbal responses which might be made in the situation. Three criteria guided the composition of the alternatives: (1) they should all be generally socially acceptable so that none would fail to be selected by at least a few subjects; (2) they should all conform to what the students were specifically being taught in the course, for the same reason; (3) they should represent, as much as was possible on an a priori basis a range of "personality types" in the sense that one "type" of person would tend to choose one alternative, another "type" a different alternative.
With respect to the latter criterion, recourse was made to Rosenzweig's P-F Test (36) for cues. One of the P-F items itself (#6) was adapted as "Situation 2" in the questionnaire.

In addition to the alternatives composed by the experimenter, space was provided for write-ins; also space for the production of a "Response you would not make". The reason for the latter will be explained below. A copy of the questionnaire appears in Appendix B, p. 104.

Responses to this "questionnaire" were not intended to be used as data for this study at any point. The "questionnaire" was constructed and administered, as a questionnaire, for the sole purpose of providing the experimenter with a way of credibly "validating" or "invalidating" the predictions to be made later by the experimental subjects. It was distributed to all students in all three class sections; i.e., it was filled out by students who did not later become experimental subjects as well as by those who did.

It was crucial, for reasons which will be explained below, that subjects should not connect the questionnaire with the research, which the experimenter had by this time introduced to them, prior to the experimental procedure. Hence the questionnaire was distributed to the classes by their respective instructors instead of by the experimenter, on the pretext that an attempt was being made by the staff
of Psychology 407 to construct an instrument which would prove interesting and useful for inclusion in the course content as soon as revisions, based on a preliminary try-out, could be made.

When the questionnaires had all been turned in, the frequency of choice for each alternative for each item was tabulated for the purpose of eliminating the low-frequency ones in the later use of the items. The write-ins were studied, and whenever there was marked frequency of a kind of response which had not been included originally, it was added to the list of alternatives for that item.

On the basis of responses to "Response you would not make", a series of unfavorable alternatives was composed for each item, so that in the later use of the ten items, two choices would be elicited per item.

The "Predictions Tests"

The "Situations Questionnaire", modified according to the procedure just described, was divided into two parts of five items each. The first part consisted of items 1, 3, 4, 6, and 9, each presented on a separate page, and was labelled "Prediction Test I". The second part contained the remaining five items and was labelled "Prediction Test II". This particular grouping of the items was guided by the experimenter's judgment as to the differences between the items in terms of their interest-evoking potentials; i.e., some of
the situations described were more dramatic than others, and it was desired to include both kinds in each group of five items so that the two Predictions Tests would be roughly equivalent with respect to this dimension.

On either side of each alternative for each item space was provided for "Your Own Choice" and "Other Person's Choice", respectively. Each was to be checked for both the favored response and the rejected response, giving a total of four check-marks per item. A copy of each of these two forms is presented in Appendix B, pp. 105-106.

Since the experimental procedure was to include the invocation of personal constructs in the predictions to be made, a separate form was devised on which the subject would record references to his RCRT productions, in the form of numbers corresponding to numbers assigned to his constructs. A copy of this form appears in Appendix B, p. 107.

Procedure

Outline of the Pilot Study Design

The design for testing the hypotheses as formulated in the previous chapter was, in outline, as follows:

(1.) Administration of the adapted Group Form of the RGRT, during a class period.

(2.) Prediction Series I: each subject (a) makes predictions as to the responses made by a classmate on a multiple-choice questionnaire and (b) specifies the constructs from his own RCRT protocol on which these predictions are based. Subject is told, upon completing the predictions, that he was generally "accurate" or that he was generally "inaccurate".
(3.) Prediction Series II: after an optimal interval following Series I, each subject (a) makes additional predictions on the same predictee as before, and (b) again specifies the predictor constructs. Subject is given same "results" as before.

(4.) Re-administration of the RCRT, same form as the first, immediately after being given "results" the second time.

Thus, comparisons of the data from (4) with the data from (1), with respect to the data from (2-b) and (3-b) would constitute the test of the hypotheses.

Administration of the Group RCRT

The Group RCRT was administered early in the Quarter to all students in all three sections of the course, by arrangement with the instructional staff. Because it was desired that all students complete the 25-item sorting procedure in one 50-minute class meeting, the Role Title lists were distributed at the end of the class-period the day before, with instructions to have the list prepared by class-time the next day. They were also instructed not to include any name more than once on the list. On the following day, instructions for the sorting were read aloud and questions were answered. Students then proceeded with the sorting, having detached the list of names from the list of titles and using only the former. Encouragement was given by the experimenter to ask questions freely during the procedure. When a student expressed total inability to think of some way in which two of a given trio of persons were similar to each other and
different from the third — i.e., when he said "They are all alike" — he was instructed to circle all three numbers, to write down the way in which all three were similar, and to write under "Contrast" the term or phrase which expressed the "opposite" to this similarity-description.

When students had completed the sorting, they were provided with envelopes in which to insert the list of names they had used, with instructions to seal the envelopes, write their names on them, and turn them in with the completed protocols. The reason for this was to obviate making out a second list of names preparatory to the re-administration of the RCRT. Also, the sealing was intended to assure the student of the confidentiality in which his list of names would be kept for him.

At the time of this administration of the RCRT the students were told in all three classes that this was part of a research project the nature of which would be explained by the experimenter at a later date.

The reason for administering the RCRT to all students in all three classes before securing volunteers for the experimental procedure was the assumption that the sorting procedure would enlist the interest of a larger number of students than could otherwise be expected to volunteer in the absence of an incentive, such as extra course credit or payment. (In this course, unlike some others, there is no
requirement to serve as experimental subjects.)

It will be recalled at this point that the "Situations Questionnaire" was administered by instructors after the students' first introduction to the research. This was done a few days after the administration of the RCRT.

**Prediction Series I**

About ten days after the above procedure, the experimenter visited each class briefly to call for volunteers for the experimental procedure. A very general description of the problem was presented in terms of "finding out something about the relationship between the ways we, as individuals, have of describing other people and certain other variables". Reference to these "other variables" was purposely kept vague at this time, and stress was placed on "how we, as individuals, see other people".

It had been decided, on the basis of preliminary trial, that it would be possible to conduct the experimental procedure with as many as three or four subjects at a time, so when appointment sheets were distributed to students at this time, no effort was made to restrict appointments to one person at any given hour. Thus it was possible for the forty-six students who volunteered to be scheduled within one week with undue crowding of the experimenter's schedule.

When individual subjects or a small group of subjects appeared at the appointed time, they were conducted to an interviewing room and the following experimental steps were
(1) E explained in more detail what the research was about, covering the following points:

(a) that the variable in which the experimenter was interested, and whose relationship to the way we see other people was being investigated, was "prediction"; specifically, the accuracy or inaccuracy of prediction. The crude analogy used to illustrate this was one's predictions about the automobile driving behavior of other people at stop-and-go signs, and the obvious importance of prediction accuracy or inaccuracy in this situation. This point was then generalized to the importance of predictions and their outcomes in interpersonal relations in general.

(b) that scientific evidence indicates that accuracy and inaccuracy in interpersonal prediction is bimodally distributed in the population; i.e., a given person tends to be either accurate or inaccurate in his predictions. (This statement was, of course, pure fabrication, intended to heighten the personal involvement with and reaction to the "results" of S's predictions.)

(c) that by way of the experimental procedure at this time it would be preliminarily determined "whether you belong to Group I -- people who are accurate in their predictions -- or to Group II -- people who are inaccurate ".

(2) E reminded the subjects of the "Situations Questionnaire which they had filled out, and informed them that the predictions to be made for the purpose stated in (1c) would be predictions as to how a classmate had responded to that questionnaire. S was to choose a "predictee" from among members of his class; i.e., any fellow-student whose responses he would care to predict. Because of the limitation in time, predictions to only five of the ten questionnaire items would be required at this point, but in order to get sufficient data, two predictions for each item would be called for; what the predictee indicated he would say in each situation and what he indicated he would not say in each situation (his two responses to each item). The manner in which the original questionnaire has been modified through "item analysis" was explained at this point. When all ten predictions were completed, they would be compared with the actual recorded responses made by the predictee, and S would be given the results of this comparison on a slip of paper indicating membership in either "Group I (accurate)" or "Group II (inaccurate)". However,
it was stated, since ten predictions are "not a scientifically acceptable sample on which to base a conclusive judgment about one's accuracy or inaccuracy", opportunity for additional predictions would be provided in another, similar experimental session after two weeks. (This will give you a chance to get to know your predictee even better.)

(3) While S was deciding on his predictee, he was given a list of the constructs he had produced on the RCRT. The constructs had been typewritten in alphabetical order, with repetitions of identical terms omitted, for facilitating S's reference to his personal constructs in connection with each prediction. (The latter procedure is described below.) Along with this list, he was given a copy of the form labelled "Predictor Constructs" (see Appendix, p. ), on the upper half of which he was to record the numbers of constructs in his typewritten list which applied to the person whom he had chosen to predict. (Each construct had been given a number in the typewritten list.)

(4) A copy of Prediction Test I was presented next to S, and E read aloud the first item. This done, it was suggested that S check on the left side of the page the alternative he had chosen when he filled out the questionnaire for his instructor — or a different alternative if he forgot or disavowed his first choice. The reason for this suggestion, as was explained to S, was to aid — if necessary — in distinguishing one's own choice from that predicted for the other person; i.e., it might help S to keep his prediction from being contaminated by his own response. (This part of the procedure was not considered essential, but the experimenter felt that this suggestion of an "aid" in prediction might impress the subjects favorably and thus heighten their involvement.) Next, S was to indicate his prediction by placing a check-mark at the right of the alternative he thought had been checked by his predictee for each of the two parts of the item.

(5) At this point, E said: "Now we want to know why -- on what basis -- you make that prediction. It must have something to do with the kind of person you see your predictee as being. Look over here at your list of constructs, especially the ones you've indicated as applying to (name of predictee). Over here (indicating the lower half of the Predictor Constructs form) you are to put in the numbers of the constructs from this list which have to do with the prediction you just
made. You will probably find several which apply." E watched while S followed this instruction, giving as much help, without suggesting actual predictor constructs, as S required. When it was ascertained that S had "caught on", he was allowed to go ahead with the other four items on his own.

(6) When S had completed all ten predictions on the five items and had recorded the numbers corresponding to the constructs which applied to each prediction, E went through the motions of "scoring" the predictions, taking pains, of course, not to allow the S actually to observe this procedure closely. Having previously assigned, at random, half of the subjects to the "Validation Group" and the other half to the "Invalidation Group", E gave S "results" corresponding to his membership in either of these groups. That is, it was predetermined that he was to be "validated", he was given a slip on which was written "Group I", supposedly meaning that his predictions were generally "accurate". If he was to be "invalidated", the slip said "Group II", indicating that his predictions were generally "inaccurate". These "results", of course, bore no relationship to actual accuracy, the latter not being a matter of experimental concern.

(7) Before leaving, S was reminded that another similar experimental session was planned and that an appointment for it, after a two-week interval, would be arranged as before. He was also asked, in the interest of proper experimental control, not to discuss the experimental procedure with any of his classmates, including those who had already participated, and especially the classmate whom S had chosen to predict. (The effectiveness of "validation" and "invalidation" -- i.e., E's statement of "results" to S -- would, of course, be seriously jeopardized if S were to consult his predictee before the next Prediction Series.)

It may be stated at this juncture that most subjects did show at least a modicum of interest, particularly in the "results", notwithstanding the degree of complexity in the task required of them. One subject gave visible signs of disturbance on being informed that she "belonged to Group II" -- flushing of the face, impaired fluency in verbalization
to the experimenter, etc.

**Prediction Series II**

Appointments for the second series of predictions were scheduled after an interval of two weeks following the first series. Twenty-five of the original forty-six subjects showed up. Since the procedure for prediction and recording of predictor constructs was identical to that in the first session, only a brief few minutes were spent in review of the instructions. S was reminded of his "results" in the first series, and was then given his list of constructs, the form for recording predictor constructs, and a copy of Prediction Test II, containing the revised items 2, 5, 7, 8, and 10 from the "Situations Questionnaire". Finally, he was instructed to go ahead as before, using the same predictee.

Upon completing the ten new predictions, S again waited while E "scored" his predictions and was given the same "results" as before. E pretended amazement at the "consistency with which findings from the first prediction series are holding up in the second".

**Re-administration of the RCRT II**

Before being released this time, S was told, it was desired that he re-do the sorting which he had done in class, because previous general experience with the name-sorting technique had indicated that it should be done twice "for best results". This reason was given to avoid the suggestion that any changes which S might make were expected to be a
function of his participation in the experimental procedure. S's original list of names, which, it will be recalled, had been retained in a sealed envelope, was presented, together with a new RCRT protocol form identical to that used in the first administration of the test.

When S had completed this, he was thanked for his cooperation and informed that E would appear before the class during the final meeting of the course to report such findings as would be ready at that time, and to answer any questions. S was then released.

In accordance with the above promise and with an agreement that had been made with the instructional staff at the outset, E did appear before each of the three classes at the end of the Quarter, at which time the falsity of the subjects' "results" was revealed and reasons for its necessity given. Most students who had served as subjects showed surprise and/or amusement, indicating at least some degree of real involvement. Also, at the behest of the instructional staff, a short discussion of the research as an example of the application of scientific principles and concepts -- e.g., "independent variable, dependent variable, experimental controls", etc. -- was given.
Findings and Implication of the Pilot Study
for Application in the Fixed Research

Experimental Techniques

The chief difficulty encountered during the procedure just described was the rather alarming rate of attrition in the number of subjects between the first and second prediction sessions. Efforts to prevent the recurrence of this during the fixed research would obviously have to be made.

Aside from this, however, no other serious problems were encountered and it was concluded that the over-all technique which had been used was quite practicable as a means of obtaining data regarding prediction and the invocation of constructs therein. No subject failed to "catch on", notwithstanding the complexities of the task required, all subjects produced a sufficient amount of data to satisfy statistical purposes, and as near as could be determined in an informal way, the manipulation of the experimental variable "validation-invalidation" did have an effect, to at least some degree, on all subjects. So far as the general plan and technique were concerned, then, it was decided that their retention in the fixed research had been justified.

The following were the methodological difficulties for which remedies in the fixed research were planned:

1. Several students failed to complete the name-sorting procedure in the class period allotted to the first administration of the RCRT. Hence, it was decided to shorten the test by eliminating five sorts, using as a criterion the frequency with which a title-number appeared in the twenty-five sorts; i.e., if, say role
title #6 had been included in five sorts, two sorts containing role title #6 might be eliminated, etc."
In other words, it was decided that twenty sorts would yield as useful a sample of the construction system as would twenty-five sorts, and save time.

2. Notwithstanding the greater ease with which a subject could refer to an alphabetized typewritten list of his constructs than to his original hand-written protocol, it was felt that some method for facilitating the subject's recording of predictor constructs could be devised which would be less laborious for the experimenter than the preparation of the typewritten lists. Furthermore, the elimination of repetitions had raised the problem of equivalence of terms; i.e., it was difficult to judge whether or not a certain construct was equivalent to an apparently similar one and, hence, to know whether to retain or eliminate it in the list. The problem of modifiers was a part of this difficulty; e.g., are "helpful" and "very helpful" one construct or two? In view of this problem a "Prediction Answer Sheet" was devised which could be aligned with the original protocol so that the recording of predictor constructs therein could be accomplished with relative ease on the part of the subject. (Appendix C, p.112.)

3. The rate of attrition in number of subjects between the two prediction series constituted a threat to adequate testing of Hypothesis III in terms of the size of the sub-samples. That is, if less than, say, fifty subjects could be expected to complete the procedure, the number of subjects in each of the two groups, Validated and Invalidated, would be perilously low from the statistical standpoint. But even more serious was the possibility of a sampling error which could be a function of the effects of the first prediction session. As it happened, a tabulation of the number of Validated and Invalidated subjects who dropped out revealed no significantly greater attrition in either group. Nevertheless, it was decided that a revision of the design was called for so that each subject would be both validated and invalidated -- i.e., serve as his own control -- for the purpose of testing Hypothesis III. The revision of this aspect of the design is described in the next chapter.

Treatment of the Data

Since the test of any of the three hypotheses would
consist of comparison between the first and second RCRT productions, categorization into "change" or "no-change" was the first concern in the treatment of the data. This presented immediate difficulties when it was discovered that in all cases the second protocol differed markedly, at least superficially, from the first, both with respect to the way in which the subjects sorted the groups of three persons and with respect to the words and phrases which were produced. The question was, what criterion to use in judging whether or not a given construct represented a change in the second protocol from the first? In other words, the unforeseen problem of equivalence of terms was now glaringly apparent.

By equivalence is meant identity, or near-identity, of meaning of two words or phrases to a particular individual. Then the RCRT is administered individually, it is possible to test for equivalence by a technique developed by Hunt (20) in a study of the consistency of constructs elicited by the RCRT. This involves a standard series of inquiries by the examiner. But use of the Group Form provides no means of a check on equivalence, and even though subjects are seen individually for the purpose of this study, time would not permit an inquiry of the kind possible in individual administration of the test.

Nevertheless, several methods for categorizing change were attempted. The first proceeded from the arbitrary assumption that any difference in Protocol II from Protocol I
was a "real" change; this failed because of the extreme paucity of data falling into the "no-change" category. The next attempt involved classifying as "no-change" any difference which entailed merely the addition or omission of a modifier signifying degree; e.g., "helpful" to "very helpful" or vice versa would be categorized as "no-change". This failed, however, to increase the "no-change" data to any significant extent. Various other criteria were applied, with similar lack of success. Furthermore, clinical analysis of the protocols for arriving at "constellations" -- a technique devised by Kelly (22, p. 158), would be useful only for testing Hypotheses B-1 and B-2, and even then could be applicable only if some method were arrived at for evaluating change in individual specific constructs to test the other hypotheses. In short, it was concluded that if the Group Form was to be used at all, the only way to categorize change unequivocally would be to minimize the likelihood that subjects would use different terms to express the same meaning. How this was attempted, and with what degree of success, will be described in the next chapter on fixed research.

For lack of an effective technique for categorizing the data, it was impossible, of course, to arrive at even a preliminary statistical test of any of the hypotheses. However, sufficient information as to the origin of various difficulties had emerged to permit the building of remedies into the
fixed research.

**The Hypotheses**

As a further outgrowth of the pilot study, and also through theoretical discussions in meetings of Dr. Kelly's research team, certain revisions of the hypotheses as stated in the last chapter seemed indicated. Ultimately, Hypotheses B-1 and B-2 were eliminated altogether for the present study, and an entirely new hypothesis formulated. The revised hypotheses are stated at the beginning of the next chapter.
Chapter 5.
THE FIXED RESEARCH

Introduction

In review, the fixed research required revision in design such as to avoid the difficulties encountered in attempting to analyze the pilot study data and to include certain control features which had been omitted from the earlier design. As has been indicated, it was necessary, specifically, to minimize the operation of "equivalence" of constructs which the use of the Group Form of the RCRT renders impossible to check. In addition to an attempt at automatic control against equivalence, the new design included a modification of the method for obtaining data by which a comparison of the differential effects of validation and invalidation could be made. In general outline, however, the fixed research remained essentially the same.

Revised Hypotheses

Following are statements of the modified hypotheses which the fixed design was proposed to test. Both theoretical and experimental formulations are presented. For the first two hypotheses, the experimental formulation is divided into two parts: (A) prediction of the existence of a relationship, and (B) prediction of the direction of the relationship. The theoretical statement of Hypotheses III contains two parts, each of which is reformulated in a separate
experimental statement. Elaboration or definitions are also
given where necessary.

Hypothesis I, Theoretical Statement: Personal constructs
which are invoked for interpersonal prediction in a given
situation will alter more readily than those not invoked in
that situation.

Experimental Statement: A. There is a significant re-

relationship between the dichotomy prediction-nonpredic-
tion and the dichotomy change-no change with respect to
personal constructs.

(A construct either is used or is not used in a predic-
tion or series of predictions, and it is either pro-
duced again or not produced again in the course of a
second sorting).

Experimental Statement: B. Constructs used in predic-
tion (predictor constructs) change more frequently than
constructs not used in prediction (non-predictor con-
structs).

Hypothesis II, Theoretical Statement: When predictions are
construed as invalidated, the constructs which were invoked
in these predictions will alter more readily than the con-
structs invoked in prediction construed as validated.

Experimental Statement: A. There is a significant re-

relationship between the dichotomy validation-invalidation
and the dichotomy change-no change.

(A construct used in prediction is either validated or
invalidated; and it either reappears or does not re-
appear in a second administration of the RCRT).

B. Invalidated predictor
constructs will change significantly more frequently
than will validated predictor constructs.

Hypothesis III, Theoretical Statement: When prediction in
one situation is subsequently construed as invalidated, the
constructs which were invoked in prediction will tend to be
abandoned as predictors in a similar subsequent situation;
when prediction in one situation is subsequently construed as
validated, the constructs which were invoked in the predic-
tion will tend to be used again as predictors in a similar
situation.
Experimental Statement: A-1: There will be a significant change of response from prediction to non-prediction and vice versa among constructs invoked in invalidated prediction when a first and a second similar series of predictions are compared.

A-2: There will be no significant change of response from prediction to non-prediction and vice versa among constructs invoked in validated prediction when a first and a second, similar series of predictions are compared.

(The use of a construct in prediction may be likened to a "yes" response on a questionnaire, and the non-use of a construct in prediction may be likened to a "no" response on that questionnaire. Thus changes from prediction to non-prediction and vice versa from a first prediction situation to a second may be treated in the same manner as changes between two sets of responses to a yes-no questionnaire.)

Subjects

The course in Educational Psychology served again as the source of the experimental sample. However, this time the students were explicitly informed, during the first call for volunteers, that two one-hour experimental appointments would be required. This was done to insure completion of the procedure by those students who volunteered at the outset. Thirty-four signed up, two of whom did not complete the procedure. The data for two of the others were unusable because of the extremely low frequency of predictor constructs which they produced. Of the thirty who provided a complete set of data, twenty-two were female, eight were male.

Instruments

The Group Role Construct Repertory Test (RCRT)

Except for the reduction by five in the number of sorts
and a few minor changes in the groupings of names, the form of the RCRT used in the fixed research was the same as that used in the pilot study. A copy of this shortened form appears in Appendix C, p. 110.

"Interpersonal Situations Questionnaire"

"Situation 10." in the original questionnaire was deleted and a new item, deemed by the experimenter to be more plausible, was substituted. (See Appendix C, p. 111) The spaces for write-ins and for the "Response you would not make" were also deleted, since these were not going to be needed under the condition each-subject-his-own-control. Duplication was done this time by mimeograph, rather than by ditto, as an added precaution against the likelihood that subjects would connect the questionnaire with the research -- the RCRT and predictions tests were all duplicated by ditto machine. Again, the questionnaire was administered to all students in the classes by the instructors a few days after the experimenter had administered the initial RCRT.

The "Prediction Tests"

The "Interpersonal Situations Questionnaire" was again divided into two parts, each consisting of the same-numbered items as appeared in the predictions used previously. However, the new forms omitted the space for checking "Your own choice" (it was decided that this contributed little to the subjects' prediction efficiency) and the space for checking the predicted response. To replace the latter, a form was
devised on which both the prediction and the references to constructs in the protocol -- the predictor constructs -- could be checked. This form was constructed in such a way that it could be lined up item by item with the RCRT protocol. Copies of this form and of the revised "Prediction Tests" appear in Appendix C, pp. 109-112.

**Procedure**

**Outline of the Fixed Design**

The revised design to be used in testing the hypotheses as reformulated was, in outline, as follows:

1. Administration of the Group Form of the RCRT.

2. **Prediction Series I**: each subject (a) makes predictions as to the responses made by one classmate on a multiple-choice questionnaire, (b) makes prediction as to the responses made by another classmate on the same questionnaire, and (c) specifies in each case the constructs, from his own RCRT protocol, upon which these predictions are based. The subject is told, upon completing the predictions on both "predictees", that he was more "accurate" in his prediction about the one person than about the other.

3. **Prediction Series II**: each subject makes additional predictions of the same kind (a and b) about the same two classmates in turn, and (c) again specifies the constructs from his own protocol upon which these predictions are based. The subject is given the same "results" as he was given after Prediction Series I.

4. "Review" of the RCRT, immediately after the subject is told the second time about his "accuracy".

Thus, comparisons of the data from (4) with the data from (1), with reference to the data from (2c) and (3c) would constitute the test of Hypotheses I and II; and
comparison of the data from (2c) with the data from (3c) would constitute the test of Hypothesis III.

**Administration of the Group RCRT**

The Group RCRT was administered in the same manner for the fixed research as for the pilot study, except that this time the students were specifically enjoined to avoid constructs representing likenesses and differences in terms of (1) age, (2) sex, (3) geographical origins or location, and (4) physical traits such as height, weight, eye color, etc. Questions were answered in the same way as in the previous study, and, again, envelopes were provided for the retention of the lists of names. The purpose of the test as part of research to be explained later was again told to the classes.

**Prediction Series I**

Two weeks after the above procedure, the experimenter visited each class briefly to call for volunteers. The same general description of the problem was presented at this time as during the earlier study. As before, more than one, but not more than four, students were permitted to sign up for the same experimental hour. Appointments were made at this time for both experimental sessions.

When a subject, or subjects, appeared at the appointed time, they were conducted to the interviewing room and the following procedure ensued:

(1) E explained briefly about the interest in interpersonal prediction, using the stop-and-go signal example, as before, and generalizing from it to interpersonal
situations of a more intimate nature, but this time omitting the fiction about a bimodal distribution of prediction accuracy. Instead, it was stated that by way of the experimental procedure it would be determined which of two persons S was more accurate in predicting.

(2) E reminded S of the "Interpersonal Situations Questionnaire which he had filled out, along with all his other classmates, for their instructor, and informed him that the predictions to be made today for the purpose just given would be predictions as to how each of two classmates had responded to the questionnaire. S was to choose two "predictees" from among members of his class. Because of the limitation in time, predictions to only five of the ten items would be required at this time with respect to each predictee; in the next experimental session, the other five items would be dealt with. When all the predictions were completed each time, S was told, they would be compared with the actual recorded responses made by both predictees, and S would be told in which of the two cases he had been more accurate.

(3) Next, the subject's original RGRT protocol was presented to him, with instructions to insert the initials of one or both predictees beside any and all constructs which applied to either or both.

(4) This done, the subject was given a copy of Prediction Test I and one of the Prediction Test Answer Sheet. The experimenter read aloud the first item of the Prediction Test and instructed the subject to predict which alternative had been checked by the predictee whom the subject had elected to predict first. Next he was shown where and how to indicate this on the answer sheet.

(5) At this point the experimenter said: "Now we want to know why -- on what basis -- you make that prediction. It must have something to do with the kind of person you see [name of predictee 1] as being. Look over here at the 'Constructs' and 'Contrasts' you wrote, especially the ones you've indicated as applying to [name of predictee 1]. Over here (indicating the columns on the answer sheet) you are to place a check in the space which corresponds to the Construct or Contrast which has to do with the prediction you just made. You will probably find several which apply. Be
careful to place the check-mark in the corresponding space on this answer sheet." The experimenter watched while the subject followed this instruction, giving as much help, but without suggesting actual constructs, as the subject required. When it was ascertained that the subject had "caught on", he was allowed to go ahead with the other four items on his own, continuing in the same way with predictee 2.

(6) When S had completed all ten predictions on the five items and entered check-marks for predictor constructs on the answer sheet for each prediction, E went through the motion of "scoring" the predictions, taking pains not to allow S to observe this procedure closely. It was pre-arranged that validation should be applied to predictions on the first predictee for half the cases and to those of the second predictee for the other half, at random. S was told "You did better on A than on B (or on B than on A)", again without regard to S's actual accuracy in either case.

(7) Before leaving, S was reminded of his second appointment and was asked not to discuss the experiment with anyone.

Prediction Series II

The second prediction session was held three weeks after the first and was identical to it, except that before proceeding with the new predictions, S was given the opportunity to make any changes in his first predictions that he might care to in an effort to improve his performance; his first answer sheet and a red pencil were provided for this purpose. (The reason for doing this was the assumption that it would tend to heighten the effects of validation and invalidation.) S was reminded, of course, of his "results" in the first prediction series.

When S had "corrected" his old predictions, he proceeded with the new series of predictions on each predictee. Upon
their completion, S again waited for E to "score" his predictions, and was given the same "results" as before, with a pretense of amazement on the part of E at the "consistency with which the findings from the first series are holding up".

"Review" of the RCRT

Instead of re-administering the RCRT in the usual re-test manner, the procedure here was to present S with his original RCRT protocol, with the instruction to "edit" it so that the revised copy would be as thoroughly satisfying to himself as he could make it. This review, S was told, was being requested because earlier research with it had shown that the first administration usually left the subject feeling unsatisfied with it; furthermore, this feeling had been expressed by numerous subjects during this experiment. Therefore, it was desired that S re-do the sorting, with his list of names and his original protocol before him. It was pointed out that for each item there were three possibilities: (1) a revision in the sorting, (2) a revision in the actual "Constructs" and "Contrasts" describing similarities and differences, and (3) no change at all. Following these remarks, E allowed S to go ahead.

It was felt that this method of re-test would minimize the use of words and phrases which are different superficially but equivalent in meaning for S: the presence of a
particular word or phrase on the original protocol would tend to call forth its use on the second protocol, rather than an equivalent term, by the operation of suggestion. Thus it could justifiably be assumed that such changes as would be written into the second protocol could be considered meaningful changes (for S.) This assumption was upheld by two lines of evidence in later analysis: (1) by inspection, the total amount of change appearing in the second protocol was markedly less in the fixed research than in the pilot study; and (2) actual calculation of the mean difference in number of re sorts between the pilot group and the fixed research group was more than six times its standard error.

This "review" of the RCRT completed, S was thanked for his cooperation and informed that E would appear in class on the last day of the Quarter to present such findings about the research as would be ready by that time. S was again requested not to discuss the research with anyone.

The experimenter did talk with the class at the end of the Quarter, revealing the deception regarding "results" and explaining the reasons for its necessity. Students who were interested in bona fide prediction accuracy scores were invited to make appointments, at their convenience, with the experimenter
Treatment of the Data

Elimination of Unusable Data

Initial inspection of the RCRT protocols revealed that almost all subjects had written a few "superficial" constructs which could not be regarded meaningful for purposes of the research. "Superficial" constructs are the kinds which subjects had, for this reason, been instructed to avoid if possible. In individual administration of the RCRT it is possible for the examiner to probe for "meaningful" constructs when "superficial" ones are produced. In the absence of such inquiry, the only way to deal with them appears to be to exclude them from the total body of data.

Accordingly, the first step in the preparation of the data was to eliminate such constructs. The criteria for "superficiality" were:

(1) terms denoting similarity-difference in age,
(2) terms denoting similarity-difference in sex,
(3) terms denoting similarity-difference in geographical origin or location,
(4) terms denoting similarity-difference in physical characteristics, e.g., height, weight, eye-color, etc.
(5) re-statements of the original role titles, e.g., "knew them in high school", "met her in college", etc.
(6) statement of S's reaction to the person or persons e.g., "I like them", "he makes me uncomfortable", etc.

Categorization into "Change" or "No Change"

The next step was to compare the second RCRT protocol for each subject with his first with respect to individual
constructs and contrasts, in order to assign each one, except the eliminated ones, to either of the categories "Change" and "No Change". First, changes in the sortings were noted, and for each item showing a re-sort on the second RCRT protocol, both the construct and contrast were automatically assigned to the "Change" category.

Secondly, the actual constructs and contrasts on the two protocols were compared, item by item. The criterion for "No Change" here was very rigorous, a term on protocol I being changed if its counterpart on protocol II was not identical to it. This rigorous criterion was justified, it was felt, on the ground that in every case there occurred a sufficient number of items identical on the second protocol to their counterparts on the first to support the belief that any change was a psychologically meaningful one.

Categorization into "Predictor Construct" (PC) or "Non-Predictor Construct" (NPC)

Since the appearance of a check-mark on the Prediction Answer Sheet designated the invocation of a construct in prediction, the assigning of constructs to the PC or NPC category had already been automatically effected in the experimental procedure. It remained only to record the designation "PC" from the answer sheet in the corresponding space on the protocol. Any construct not checked on the answer sheet automatically became NPC on the protocol.

Separate tabulation was made of the constructs invoked
in predictions subsequently invalidated and of those invoked in predictions subsequently validated. They were designated I and V, respectively.

**Categorization into Differential and Non-Differential Predictor Constructs**

It will be remembered that each subject made predictions about two people, and that his predictions about one were validated and those about the other invalidated. It had been expected, of course, that some constructs would be invoked in the predictions on both predictees, and this did occur in the case of every subject. Since each of these "non-differential" constructs would be both validated and invalidated, they could not be included as data in the test of the respective effects of validation and invalidation (Hypotheses II and III), although as predictor constructs *per se* they were usable in testing Hypothesis I. Accordingly, they were tabulated separately, excluded from the tests on the last two hypotheses, and included in the test of the first.

In summary, treatment of the data preparatory to statistical analysis consisted of categorizing the constructs in Protocol I according to the following scheme:

1. Change (C) - No Change (NC)
II. Predictor Constructs (PG) - Non-Predictor Constructs (NPC)

<table>
<thead>
<tr>
<th>Differential Predictor Constructs</th>
<th>Non-differential Predictor Constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differential Predictor Constructs</td>
<td>Differential Predictor Constructs</td>
</tr>
<tr>
<td>Validated (V)</td>
<td>Invalidated (I)</td>
</tr>
</tbody>
</table>

The frequencies of constructs belonging in each category were tallied for each subject, and these frequencies are shown in Table

**Results**

Complete data for all subjects is given in Table II, Appendix A. In the present section, the findings with respect to each of the experimental hypotheses will be presented in turn.

**Experimental Hypothesis I:** A. There is a significant relationship between the dichotomy prediction-non-prediction and the dichotomy change-no change with respect to personal constructs.

The null hypothesis -- i.e., no relationship which could not be accounted for by chance -- was tested by the application of the chi-square test of independence, given by

$$\frac{N(AD - BC)^2}{(A B)(C D)(A C)(B D)}$$

where A and B represent the frequencies in the first row of cells and C and D represent the frequencies in the second row of cells in a four-fold contingency table. Chi-square for the pooled data of all thirty cases was found to be significant between the .02 and .01 levels of confidence.
Thus, the null hypothesis, that prediction-nonprediction and change-no change are independent, can be rejected on the ground that the observed differences in numbers of predictor constructs which change and the number of nonpredictor constructs which change would occur in less than two out of 100 repetitions of this experiment. Table 1. shows the application of Chi-square to the pooled frequencies of the two kinds of constructs showing change or no change.

Table 1.

<table>
<thead>
<tr>
<th>Construct Type</th>
<th>Changed</th>
<th>Unchanged</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td>221</td>
<td>218</td>
</tr>
<tr>
<td>NPC</td>
<td>351</td>
<td>252</td>
</tr>
</tbody>
</table>

\[ x^2 = 6.351, \text{ df}=1, \quad 0.01<p<0.02 \]

Experimental Hypothesis I: B. Constructs used in prediction are more likely to change than constructs not used in prediction.

The data showed a trend in reverse of the direction hypothesized regarding the association between change-no change and prediction-nonprediction. That is, it was found that pooled changes occurred with greater frequency in the nonpredictor category than in the predictor category. The consistency of this directional trend was subjected to test
by Chi-square for heterogeneity (43, p. 200) in the following manner: Chi-square for independence of PC-NPC and changed-unchanged was computed for each subject; i.e., the productions of each subject were treated as a subsample of the universe of constructs. The thirty Chi-squares thus obtained were totaled, and from this total was subtracted the Chi-square for the pooled data. With df for the difference between total Chi-square and pooled Chi-square equal to the difference between df for the total and df for the pooled, or 30-1, for heterogeneity Chi-square proved small (p about .50). This indicates relative homogeneity among the construct subsamples with regard to the direction of the association between PC-NPC and change-no change, and hence the pooled Chi-square may be interpreted as meaningful. (Had Chi-square heterogeneity been large -- p .05 or less -- the interpretation would have been that variation in the direction of the association among the individual subsamples was so great that pooling the data could not yield meaningful evidence regarding the hypothesis.) Table 2 contains the data regarding Chi-square for heterogeneity.
Table 2.

<table>
<thead>
<tr>
<th></th>
<th>( \chi^2 )</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>35.091</td>
<td>30</td>
</tr>
<tr>
<td>Pooled</td>
<td>6.351</td>
<td>1</td>
</tr>
<tr>
<td>Heterogeneity</td>
<td>28.740</td>
<td>29</td>
</tr>
</tbody>
</table>

When kinds of constructs are trichotomized and the frequencies of nonpredictors, validated predictors, and invalidated predictors which show change and no change are entered into a three-by-two contingency table, the null hypothesis — i.e., no relationship that could not be attributed to chance sampling fluctuations — is rejectable at an even higher level of confidence, \( p \) less than .001. Table 3 shows the results of ordering the pooled data according to a three-by-two table.
Table 3.

OBSERVED FREQUENCIES OF THE THREE KINDS OF CONSTRUCTS FALLING INTO THE CHANGE AND NO CHANGE CATEGORIES

<table>
<thead>
<tr>
<th>Changed</th>
<th>Unchanged</th>
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</thead>
<tbody>
<tr>
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<td>fe=323.3</td>
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<td>(fo-fe)²/e=2.743</td>
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<tr>
<td></td>
<td>603</td>
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<tr>
<td>I</td>
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<tr>
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<tr>
<td>fe=82.4</td>
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<tr>
<td>(fo-fe)²/e=0.354</td>
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<td>(fo-fe)²/e=6.784</td>
<td>(fo-fe)²/e=7.944</td>
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<td></td>
<td>136</td>
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</table>

\[ \chi^2 = 20.065, \text{ df } = 2, \text{ p } .001 \]

Inspection of this table reveals that differences between observed and expected frequencies of change and no change among **invalidated** constructs contributes little to \( \chi \)-square, and that such slight difference as does occur is in the reverse direction from that predicted by Experimental Hypothesis I-B. In contrast, the differences between observed and expected frequencies of change and no change among **validated** predictor constructs -- also in the reverse direction -- contribute the major amount to the total. In other words, the separate sub-categories **invalidated predictor constructs** and **validated predictor constructs** contributed...
rather markedly different amounts to the over-all differences between observed and expected frequencies of change and no change. It was thought, therefore, that comparing each, separately, with nonprediction in testing the relationship to change might prove of value in interpreting the findings relative to Hypothesis I. This is tantamount to asking: (1) is there a significant relationship between prediction-nonprediction and change-no change if one rules out the effects of validation? and (2) is there a significant relationship between prediction-nonprediction and change-no change if one rules out the effects of invalidation? Accordingly, Chi-square for independence was applied to the two corresponding four-fold tables.

Chi-square for independence of nonprediction-(invalidated) prediction from change-no change has a p-value between .05 and .10; hence the null hypothesis cannot be safely rejected, though a trend is suggested by the pooled data. Due to the low frequency of invalidated constructs in individual cases, Chi-square could not be applied to the individual subsamples without adjustment for continuity, and since the addition theorems for Chi-square are not applicable to adjusted values of Chi-square (43), it was not possible to compute a total Chi-square for the purpose of assessing heterogeneity. Inspection of Columns 9a and 9b in Table however, reveals that in 16 of the cases the direction of
differences conforms with the hypothesis, in 13 it is in reverse of the hypothesis, and in 1 there is no difference at all. Thus, little consistency obtains among the subsamples in this regard. Table 4 shows these findings.

Table 4.

<table>
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<tr>
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</tr>
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<tr>
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<td>252</td>
</tr>
<tr>
<td>I</td>
<td>77</td>
<td>77</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 3.363, \text{df} = 1, .05 p < .10 \]

In contrast with the above, Chi-square applied similarly to nonpredictor constructs and (validated) predictor constructs showed the differences between observed and expected frequencies to be significant well above the .001 level for the pooled data, the direction of the relationship being, of course, in reverse of that hypothesized. Inspection of the individual cases (see Table 11, Columns 10a and 10b) reveals that 19 were in reverse of the hypothesis, 9 in support of it, and 2 showing no difference in frequency of change and no change at all. These data are given in Table 5.
Table 5.

<table>
<thead>
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<td>85</td>
</tr>
<tr>
<td>NPC</td>
<td>351</td>
<td>252</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 19.3, \text{ df } = 1, \ p .001 \]

**Experimental Hypothesis II**: A. There is a significant relationship between the dichotomy validation-invalidation and the dichotomy change-no change.

Chi-square applied to a four-fold contingency table containing the pooled data on the categories validated-invalidated and change-no change reached a p-value of slightly less than .10, revealing a trend but not permitting the rejection of the null hypothesis. The frequencies in individual cases were too low for the application of Chi-square without adjustment for continuity, and, again, because of the inapplicability of the addition theorems to adjusted Chi-squares, a total Chi-square for assessing heterogeneity could not be computed. Therefore a definitive test of the null hypothesis was not achieved. Table 6 shows the application of Chi-square for independence to these data pooled.
Table 6.
TESTING FOR INDEPENDENCE BETWEEN VALIDATION-INVALIDATION AND CHANGE-NO CHANGE IN POOLED DATA

<table>
<thead>
<tr>
<th></th>
<th>Changed</th>
<th>Unchanged</th>
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<tr>
<td>I</td>
<td>77</td>
<td>77</td>
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<tr>
<td>V</td>
<td>51</td>
<td>85</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 4.577, \text{df} = 1, .05 p .10 \]

Experimental Hypothesis II: B. Invalidated predictor constructs will show significantly more change than validated predictor constructs.

Inspection of the above table reveals that the differences between observed and expected frequencies of change and no change among validated and invalidated predictor constructs are in the predicted direction; i.e., more invalidated than validated constructs show change. Table in Appendix shows the tabulation, among the thirty subsamples, of differences in each direction. Table 7 summarizes these data.

Table 7.
DISTRIBUTION OF CONSTRUCT SUBSAMPLES ACCORDING TO DIRECTION OF RELATIONSHIP BETWEEN VALIDATION-INVALIDATION AND CHANGE-NO CHANGE

<table>
<thead>
<tr>
<th>More Change with Invalidation</th>
<th>More Change with Invalidation</th>
<th>Equal Change with I and V</th>
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<td>14</td>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>


Experimental Hypothesis III: A-1. There will be a significant change of response from prediction to nonprediction and vice versa among constructs invoked in invalidated prediction when a first and a second similar series of predictions are compared.

The Chi-square test for significance of changes in response given by

\[
\frac{(A - D)^2}{(A + D)}
\]

where A represents the changes from prediction to nonprediction and D represents the changes from nonprediction to prediction, was applied to the pooled data accumulated in Prediction Series I and Prediction Series II, respectively. (The frequencies for these changes among invalidated predictor constructs are given in Columns 11 and 13 of Table 11 in Appendix A). Among invalidated predictor constructs, this Chi-square was found to be significant beyond the .01 level.

Experimental Hypothesis III: A-2. There will be no significant change of response from prediction to nonprediction and vice versa among constructs invoked in validated prediction when a first and a second similar series of predictions are compared.

Chi-square for significance of changes was wholly insignificant among validated predictor constructs.

Adapting the significance-of-change table

| 2nd series |  
| --- | --- | --- |
| (Nonprediction) | (Prediction) |
| 1st series | A | B |
| | C | D |
to horizontal form, Table 8 shows the frequencies, Chi-squares, and p-values for both the validated and invalidated constructs.

Table 8.

FREQUENCIES, CHI-SQUARES, AND P-VALUES FOR CHANGE OF RESPONSE PREDICTION-NONPREDICTION AND VICE VERSA FROM SERIES I TO SERIES II WITH RESPECT TO INVALIDATED AND VALIDATED CONSTRUCTS

<table>
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<tr>
<th></th>
<th>PC Changed to NPC</th>
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<th>C NPC Remaining NPC</th>
<th>D NPC Changed to NPC</th>
<th>X²</th>
<th>p</th>
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</thead>
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<tr>
<td>I</td>
<td>56</td>
<td>x</td>
<td>x</td>
<td>31</td>
<td>7.18</td>
<td>.01</td>
</tr>
<tr>
<td>V</td>
<td>41</td>
<td>x</td>
<td>x</td>
<td>41</td>
<td>0.00</td>
<td>.99</td>
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</table>

This analysis of the effects of validation and invalidation, respectively, upon invocation of constructs in successive predictions suggested that a comparison of these effects with each other might bring to light some indications regarding a possible relationship between "constriction" and "dilation", and validation-invalidation. "Constriction refers, in the Psychology of Personal Constructs, to the narrowing down, or closing out, of portions of the construction system with respect to their functional role; i.e., under certain conditions the person tends to restrict from some, or many, of his constructs. "Dilation" refers to the broadening, or extension, of portions of the construction system with respect to their functional role; under certain
conditions the person tends to increase the range of constructs which he brings into play. In the present data, the abandonment or retention of constructs from Prediction Series I to Prediction Series II and the use of constructs in the second series which were not used in the first could serve as categories descriptive of the variable "constriction-dilation". Thus, if the data were classified according to these categories, one could test for a relationship to validation-invalidation by the application of Chi-square to a three-by-two contingency table. This was done as shown in Table 9. It

Table 9.

OBSERVED FREQUENCIES OF VALIDATED AND INVALIDATED CONSTRUCTS ABANDONED OR RETAINED FROM PREDICTION SERIES I TO PREDICTION SERIES II OR FIRST INVOKED IN PREDICTION SERIES II

<table>
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<td>f_o=56</td>
<td>f_o=31</td>
</tr>
<tr>
<td>f_e=82.6</td>
<td>f_e=50.8</td>
<td>f_e=38.6</td>
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<td>(f_o-f_e)^2/e=.024</td>
<td>(f_o-f_e)^2/e=.532</td>
<td>(f_o-f_e)^2/e=1.496</td>
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<tr>
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<td>f_o=41</td>
<td>f_o=41</td>
</tr>
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<td>(f_o-f_e)^2/e=.585</td>
<td>(f_o-f_e)^2/e=1.729</td>
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<tr>
<td>158</td>
<td>97</td>
<td>72</td>
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</tbody>
</table>

\[ \chi^2 = 4.455, \text{ df } = 2, \quad .10 < p < .20 \]

is seen that the p-value of Chi-square is not small enough to permit rejection of the null hypothesis so far as these
data are concerned; i.e., no significant relationship was found between constriction-dilation and validation-invalidation, though a trend is suggested. Inspection of the table reveals that differences between observed and expected frequencies of validated and invalidated constructs which are retained from the first prediction series to the second are negligible, and that it is in the use of new constructs in the second series that the greatest differences occur. When Chi-square is applied to the categories "abandoned" and "new" versus validated-invalidated, a p-value approaching significance is found (.05<p<.10). Table 10 shows this finding.

**Table 10.**

OBSERVED FREQUENCIES OF VALIDATED AND INVALIDATED CONSTRUCTS ABANDONED FROM PREDICTION SERIES I OR FIRST INVOKED IN PREDICTION SERIES II

<table>
<thead>
<tr>
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<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>31</td>
</tr>
<tr>
<td>V</td>
<td>41</td>
<td>41</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 3.56, \text{df} = 1, \ .05<p<.10 \]

The direction of this relational trend favors the hypothesis that invalidation of prediction tends to result in constriction. In the next section, on interpretation of results and suggestions for further research, the implications of this
finding will be discussed.

**Interpretation of Results and Suggestions for Further Research**

In brief review, the experiment here reported was designed to test the hypotheses that (1) change in constructs are a function of their use, or invocation, in prediction; (2) different outcomes of prediction have differential effects on the likelihood of change in the constructs on which the predictions were based, more change following invalidation than following validation; and (3) the constructs invoked in predictions subsequently construed as invalidated will be abandoned with significant frequency as predictor constructs, while those invoked in prediction subsequently construed as validated will tend to be re-invoked, when a later situation calls for predictions similar to those previously made.

Initial analysis of the data relevant to the first hypothesis revealed a significant relationship between prediction and change, but in the reverse direction from that hypothesized; i.e., this is more change among constructs not used for prediction than among predictor constructs. A partial explanation for this over-all reversal seems evident when the predictor constructs are separated out into those validated and those invalidated: there is, in toto, marked resistance to change among validated constructs. In other words, if a construct is seen to "work" in prediction, it is
less likely to change than either a construct which does not "work" or one which is not used in those, or similar, predictions at all. In view of the unforeseen degree of the stabilizing effect of validation on a construct, then, it appears that the experiment as designed could not really test the first hypothesis. That is, an adequate test would require that outcomes of prediction be kept out of the design so that the effect of invocation qua invocation on amount of change can be unequivocally compared with the effects of non-invocation.

Stability was, of course, predicted for the validated constructs in terms of comparison with change in invalidated constructs (Hypothesis II). The analysis of the data relevant here does reveal a trend in support of the experimental prediction. Had larger frequencies per subject been elicited, permitting (1) the application of Chi-square to individual data, (2) the summation of these Chi-squares, and (3) a test for heterogeneity, the trend would very likely have been strengthened.

The findings with respect to the effects of invalidation on construct change are inconclusive. The difficulty here appears explicable in terms of the results on variation in construct-invocation for comparable predictions at different times. With respect to the failure of invalidation to show a statistically significant relationship to changes in
constructs (though a trend in the predicted direction has been found), it may by hypothesized that it is precisely the tendency for subjects to abandon as predictors those constructs which have been invalidated which prevents their being changed. To state this in another way: abandonment of a construct as a predictor, following invalidation, accounts for the failure of this construct to show change. This interpretation would, in turn, support the first hypothesis of this study, namely, that a construct is not likely to change unless it is invoked in prediction.

The obvious implication of the foregoing is that in order adequately to test the specific hypothesis that changes in constructs are a function of invalidation, a design would be set up such that no opportunity is provided for shifting from a set of predictor constructs which have been invalidated to another set at another time before the test of construct change is applied. In other words, an adequate test would require that the effects of invalidation be given maximal opportunity to operate by preventing the substitution of new predictors for the invalidated ones. Specifically, this would have to be done by applying the test of construct change after a single prediction series. (Of course, a longer series than each of those used in this study would have to be employed to insure a sufficient quantity of data per subject.)

Although the present study did not aim to investigate
"dilation" and "constriction" of conceptual activity, the data relevant to Hypothesis III suggested a preliminary test for a relationship between validation-invalidation and dilation-constriction. A trend favoring a hypothesis of relationship between these two sets of categories was found. This trend was found to be more marked when attention was directed specifically to the abandonment of constructs as predictors from a first prediction situation to a second and to the invocation, in the second situation, of constructs which had not been invoked in the first, disregarding those constructs invoked both times. The near-significance of Chi-square here is interpreted to indicate that in comparison with the effects of validation, invalidation tends to make for constriction in the sense that more constructs are abandoned as predictors after they have been invalidated and fewer new ones are later invoked to replace the abandoned ones. On the other hand, if dilation is measured by an increase in the number of constructs invoked after validation, the present data do not support a hypothesis to the effect that validation makes for dilation; only as many new predictors appeared as were abandoned. However, it should be emphasized again, that this finding, which was incidental to the main aim of the present study, represents only a trend and should be investigated separately and specifically before any conclusions can be drawn. Such investigation might profitably involve not merely one but several prediction
sessions, so that the effects of validation and invalidation are permitted to cumulate; i.e., so that constriction and dilation may be measured by way of a series of validational and invalidational experiences put to the subject. It is expected that findings by way of such a design might have direct implications for therapy.

**Generalization from the Present Study**

So far as the application-value of the present findings is concerned, it will be remembered that the approach made in this study to the relationship between prediction-and-outcomes and construct change was in terms of clarifying a theoretical issue rather than in terms of obtaining information lending itself to prediction in individual cases. This approach has been represented statistically in the pooling of the data accumulated in individual cases; i.e., a given subject's constructs were treated as a subsample of the universe of personal constructs. Therefore the interpretations made in the preceding section apply only to the constructs of people-in-general, and then only to the extent that the experimental subjects may be considered a representative sample. Regarding the latter consideration, it is felt that the use of the particular group of subjects employed in this study does not constitute a serious limitation upon the generalization value of the data, since there is no reason to believe that the procedure used in the study, applied to other kinds of subjects -- e.g., non-college
students — would yield data systematically different from those obtained here.

The limitations of these findings with regard to prediction in individual cases are most evident in the results concerning the effects of validations of prediction upon construct-change compared with the effects of non-invocation of constructs for prediction. Here the inconsistency of the direction of the difference between observed and expected frequencies among individual cases indicates that one could not predict for a given individual which of these two kinds of constructs are more stable following a given interpersonal prediction: those he does not invoke at all or those he does invoke which are subsequently validated.

Stated in more general terms, the limitations upon prediction in individual cases from these findings are evident when it is remembered that even with low heterogeneity, a significant Chi-square for pooled data may be interpreted only as a significant trend which is obscured in subsamples.

The accumulation of data having implications for prediction in individual cases would call for an entirely different approach, possibly one in which a detailed qualitative analysis would be made, say, of the position of predictor construct relative to non-predictor constructs within the structure of the construction system. The clinical analysis of RCRT protocols in terms of constellations, suggested by Kelly (22), might prove a useful method of attack on this
problem.
Chapter 6.
SUMMARY AND CONCLUSIONS

The general object of this study was to explore the functional role of personal constructs. Previous studies in the area of concepts and concept formation have been limited along two dimensions: (1) they have viewed the process and its products within a narrow context called "cognition", which, in turn, has been relegated to a minor status within the hierarchy of psychological concepts; and (2) they have focussed almost wholly on the acquisition of concepts, giving no theoretical or empirical consideration to the matter of what happens to a concept, or to the functional role it plays, after it is once acquired.

The theoretical approach underlying the present study represents an attempt to re-vamp the roles of concepts and concept formation by assigning them major importance in an ad interim theory of personality. Postulating "the anticipation of experience" as the direction in which "mental processes evolve", the theory attempts to open new areas for research and thereby to increase the potential for prediction of individual human behavior, by relating "anticipation", or prediction, by the individual to construing and its patterned product, the construction system.

This study was designed in the hope of testing some hypotheses deriving from the theory's basic postulate. The first hypothesis, that changes in constructs are a function
of their use in prediction, proved to be inadequately tested, paradoxically by reason, it appears, of the unexpected degree of support found for the second and third hypotheses. In the interpretation of these results, (p. 86), a design for an adequate test of Hypothesis I is suggested.

Hypothesis II predicted that there is a significant relationship between outcomes of prediction ("right" or "wrong", validated or invalidated) and changes in the constructs invoked; and that, furthermore, the "wrong" predictions will produce significantly more construct changes than will the "right" predictions. The data show a trend in support of both aspects of Hypothesis II, notwithstanding that frequencies of relevant data were too low in individual cases to permit a fine analysis.

The third hypothesis predicted that the use, or invocation, of a construct for prediction will vary significantly between two situations separated in time requiring similar predictions when the predictions made in the first situation were "wrong"; and that the invocation of a construct for prediction will tend to be repeated following evidence that the earlier predictions were "right". The data are in striking support of this hypothesis.

Two broad conclusions may be drawn. With respect (1) to the content of these findings, it appears that use-nonuse of constructs in interpersonal prediction does bear a relationship to changes in the perception of experience. Further
research along this line is, of course, necessary in order to clarify, for example, both the exact limits of, and full possibilities for, change with prediction. But the potential implications of even this very general conclusion for therapy, to cite only one example of the attempt by one person to bring about changes in another — are readily apparent.

With respect (2) to theory and methodology in general, the present findings demonstrate the fertility of the Personal Construct approach as a source of potentially testable hypotheses. As a new orientation, it is, of course, still in a relatively exploratory stage so far as methodology is concerned. On the other hand, its adaptation (The Role Construct Repertory Test) of a traditional clinical technique for studying concept formation to new kinds of problems has already proved itself a valuable research technique having wide possibilities of application. One may expect that continued and varied application of this tool in further study will contribute materially to the body of knowledge slowly being accumulated in the effort to improve prediction and control in the area of personality.
Bibliography


APPENDIX A

Tables
## Table 11.
### COMPLETE DATA FOR ALL SUBJECTS

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<td>24</td>
<td>14</td>
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<td>4 1 2 0</td>
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<td>1 1 0 0</td>
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Table 12.

TESTING FOR INDEPENDENCE BETWEEN PREDICTION-NONPREDICTION AND CHANGE-NO CHANGE IN INDIVIDUAL CASES

(Hypothesis I)

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<thead>
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<th>Subject #</th>
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<td>3.</td>
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<td>5.</td>
<td>0.542</td>
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</tr>
<tr>
<td>6.</td>
<td>1.318</td>
<td>x</td>
</tr>
<tr>
<td>7.</td>
<td>0.029</td>
<td>x</td>
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<tr>
<td>8.</td>
<td>1.492</td>
<td>x</td>
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<tr>
<td>9.</td>
<td>0.000</td>
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<td>0.202</td>
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<tr>
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<td>0.333</td>
<td>x</td>
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<td>15.</td>
<td>0.113</td>
<td>x</td>
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<td>16.</td>
<td>2.015</td>
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<tr>
<td>17.</td>
<td>0.278</td>
<td>x</td>
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<td>0.171</td>
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<td>19.</td>
<td>0.111</td>
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<td>21.</td>
<td>9.972**</td>
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$\Sigma^2 = 35.091$

df = 30

.20 p .10
Table 13.
TESTING FOR INDEPENDENCE BETWEEN VALIDATION-INVALIDATION AND CHANGE-NO CHANGE IN INDIVIDUAL CASES
(Hypothesis II)

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<td>4</td>
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<td>5</td>
<td>2.638</td>
<td>x</td>
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<tr>
<td>6</td>
<td>0.000</td>
<td>- - - - - - - - **</td>
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<tr>
<td>7</td>
<td>0.104</td>
<td>x</td>
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<tr>
<td>8</td>
<td>0.350</td>
<td>x</td>
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<td>9</td>
<td>2.000</td>
<td>x</td>
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<td>10</td>
<td>0.104</td>
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<td>11</td>
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<td>13</td>
<td>0.026</td>
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<td>14</td>
<td>0.750</td>
<td>x</td>
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<td>15</td>
<td>2.222</td>
<td>x</td>
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<td>17</td>
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<td>0.792</td>
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<td>x</td>
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<td>***</td>
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<td>26</td>
<td>3.500</td>
<td>x</td>
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<td>27</td>
<td>1.436</td>
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<td>- - - - - - - -</td>
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<tr>
<td>30</td>
<td>0.000</td>
<td>- - - - - - - -</td>
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</table>

S^2 = 29.839
\[ df = 28 \]
p = .50 (approx.)

**In these cases, all DPCI changed and all DPCV changed.

***In these cases, subjects contributed no DPCV.
APPENDIX B

Forms Used in Pilot Study
Part A: Male Title List

Instructions: Write the name of each of the persons designated below, using the corresponding spaces provided on the right side of the page.

1. You cannot remember the name, but do remember the person. Use a word to identify that person for yourself.

2. You cannot remember the person. Substitute the name of a person whom the title suggests to you.

3. If a role title suggests to call for a duplicate name, substitute the name of another person whom the title suggests to you.

Do will be your own list, for you to use. No one else will see it.

1. Your mother (or the person who has played the part of a mother in your life.)
2. Your father (or the person who has played the part of a father in your life.)
3. Your sister nearest your age (or the girl who has been most like a sister.)
4. Your brother nearest your age (or the fellow who has been most like a brother.)
5. Your boyfriend (girlfriend): the person you date most often or are engaged to; if you are married, your husband (wife).
6. A teacher you like, or the teacher of a subject you like.
7. A teacher you dislike, or the teacher of a subject you dislike.
8. An employer or supervisor you worked under, whom you got along well with.
9. An employer or supervisor with whom you had an unsatisfactory relationship.
10. A girl you associate closely with at the present time, with whom you get along especially well.
11. A fellow you associate closely with at the present time, with whom you get along especially well.
12. A girl you associate closely with at the present time, with whom you are usually uncomfortable.

A fellow you associate closely with at present, with whom you are usually uncomfortable.

A girl with whom you have only a slight acquaintance, whom you would like to know better.

A fellow with whom you have only a slight acquaintance, whom you would like to know better.

A girl with whom you have only a slight acquaintance, whom you would not care to associate closely with.

A fellow with whom you have only a slight acquaintance, whom you would not care to associate closely with.

Your closest female friend in high school.

Your closest male friend in high school.

A girl you associated closely with in high school, whom you didn’t like.

A fellow you knew only slightly in high school, but whom you wished you could have gotten to know better.

A girl you knew only slightly in high school, and whom you didn’t care to associate closely with.

A fellow you knew only slightly in high school, and whom you didn’t care to associate closely with.

The person you would most like to be of help to, or whom you feel most sorry for.

The person you’ve had the most trouble understanding or figuring out.

A person you know who reminds you of someone famous.

A person your age who seems to like you especially well.

A person your age who seems to dislike you.

Think of yourself as you would like to be in five years; the person who is most like this "ideal".

The person who is least like this "ideal".
Part B: Construct Sorts III

Instructions: The numbers grouped in the following series of items refer to the numbers corresponding to the names you have written down in Part A.

In each of the following items, 1 to 25 inclusive, you are given three numbers. For this part of the procedure, you are to think about the three, and only three, people whose names correspond to the three numbers given for each item.

Keeping these three people in mind, ask yourself the question: "In what outstanding way are two of these three people similar and different from the third?"

When you have decided on the way in which two -- any two -- are similar and different from the third, write the word or phrase which describes the similarity in the corresponding blank under "CONSTRUCT". If you can't put it in one word, use more, but please be brief, use your own terms, those which are most meaningful for you. You may use slang or whatever terms are easiest for you.

Next, draw a circle around the two numbers corresponding to the two people who are similar in the way you've described.

Finally, write into the corresponding blank under "CONTRASTING CONSTRUCT" the term that describes the difference between the third person and the other two. This term should be the opposite of the term under CONSTRUCT, but you may find in some cases that it isn't. Therefore, after each item, draw a circle around "0" if the "CONTRASTING CONSTRUCT" is the opposite of the "CONSTRUCT", and a circle around "X" if the "CONTRASTING CONSTRUCT" is not the opposite.
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<th>CONTRASTING CONSTRUCT</th>
<th>3:00</th>
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<td>Tall</td>
<td>Short</td>
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</tr>
<tr>
<td>2.</td>
<td>Sentimental</td>
<td>Intellectually aware</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Sentimental</td>
<td>Intellectually aware</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Reserved</td>
<td>Gay (assumed)</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Significant, matte</td>
<td>Physically shallow, sort of</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Religious background</td>
<td>Less religious</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Their eyes are presently projected</td>
<td>Eyes open</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Motherly</td>
<td>Sour</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Yelling</td>
<td>Leader</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Self-confident</td>
<td>Dependent on others</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Considerate of others</td>
<td>Motherly, additively</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Married, virtually married</td>
<td>&quot;Eat, drink, be merry...&quot;</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Definite goal in life</td>
<td>Uncertain goal in life</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Overestimate their capacities</td>
<td>Actually</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Liberating</td>
<td>Gory</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Talkative</td>
<td>Rude</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Mathematically inclined</td>
<td>Practical jokes</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Ambitious</td>
<td>Protected, comfortable</td>
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</tr>
<tr>
<td>19.</td>
<td>Optimistic</td>
<td>Pessimistic</td>
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<tr>
<td>20.</td>
<td>Socially at ease</td>
<td>Socially uncomfortable</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Studious, come first</td>
<td>Social life first</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Reserved, not easy to talk</td>
<td>Rather shy, uptight</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Can only see themselves</td>
<td>Really earthy, contains others</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Still looking outward, life has lived and can smile on others</td>
<td>Not at all</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Content, not at all content</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following is a list of ways of describing people, taken from your "construct repository":

1. can laugh at nothing
2. can see self only
3. carefree
4. conceited
5. considerate of others
6. definite goal in mind
7. dependent on others
8. dignified
9. easy to talk to
10. "eat-drink-and-be-merry" attitude
11. eyes are personality projectors
12. follower
13. gay
14. gossip
15. has lived and can smile on others
16. intellectually awake
17. lax religiously
18. leader
19. материли likes animals
20. mathematically inclined
21. mature
22. mental slouch
23. mentally childish, physically adult
24. motherly
25. not at all conceited
26. not sentimental
27. optimistic
28. overestimates own possibilities
29. overly talkative
30. pessimistic
31. practical joker
32. rather stuck-up
33. realizes earth contains others
34. religious background
35. reserved
36. rude
37. self-confident
38. sentimental
39. seriously minded
40. sneaky
41. sneaky eyes
42. socially at ease
43. still looking on toward life
44. socially uncomfortable
45. social life first
46. studies come first
47. thinks of others, too
48. too important to self
49. uncertain goal in life
50.
SITUATIONS QUESTIONNAIRE
Psychology 407

Instructions

Following are described ten situations in which you might at some time find yourself. For each situation, several different responses are suggested; some situations are followed by more alternatives than others. Space is provided for the addition of an alternative not suggested.

You are to check the response which comes closest to how you would be most likely to react in the situation. On reading the responses, you may find it quite hard to make a choice, because all the responses are "good" ones; that is, no responses are included which would not be acceptable to the majority of students and teachers in Education. This means that the basis on which you make your choice can and should be the way you would feel and react in the situation, instead of how you think you "should" respond or the way other people might think you "should" respond.

If none of the suggested alternatives expresses the way you would be most likely to respond, write in the response you feel you would make.

After you have made a choice for a situation, write in the response you would be least likely to make. No suggestions are given for this, since it is usually so much easier to know what one would not do or say at certain times.

SITUATION 1.

You and another teacher are discussing Johnny, age 6, with whom you've both had trouble in the classroom because he's always creating disturbances by teasing the girls in seats near him. The other teacher remarks: "I get so mad at him sometimes that I could shake him!" You reply:

1. "You shouldn't let him bother you. He wants attention, and that's his way of getting it."

2. "Nothing I ever tried with him seemed to work. Whatever I ignored it, gave him the attention he wanted, or anything." 

3. "Someone should teach his parents a few things about a child's needs."

4. "Well, he upset me a lot of the time too, but I must admit I had a hard time keeping from laughing at some of the things he did in my class."

5. "Have you thought of giving him some special responsibility, like erasing the board every day?"

6. "He's really an awfully bright boy. If he got straightened out, he'd certainly go places some day."

7. "I can understand how you feel. Anyone would get exasperated over the problems he raises in class."
In the library, I counted all the books in which you’ve put these records. I’m counting back from every book to make sure none of them are out of place. Are you sure you put your records in the proper places?

1. Yes, I did. I didn’t even check the last box.

2. That’s fine. I’ll make sure the librarian checks the rest of the books.

3. Okay. I’ll do that. I just hope the librarian can find them.

4. She’ll be surprised to find them. I’ll make sure the librarian knows where to look.

You are envied by one of your colleagues that this main office. You know, I’m always afraid that you have a real job. But I think you have to start thinking about it. You need to think about how you’re going to get yourself out of here.
SITUATION 3. — continued

5. "Well, I'll admit that I did complain about her to Mr. Jones (principal), though I'm not trying to influence anyone against her."

6. "That's awful, for her to say that. But I don't know what I can do about it."

7. "Maybe she's jealous because I'm on so many of the extra-curricular committees and she isn't on any, or something like that."

8. "Well, I won't let that bother me. I don't pay attention to petty rumors and things like that."

9. Other: ____________________________

Response you would not make: She is absolutely wrong and ____________________________

SITUATION 4.

P.T.A. meeting, the mother of one of the pupils in Miss Brown's class complains to about Miss Brown's unfairness to her child. You reply:

1. "Why, I'm sure Miss Brown is impartial in her treatment of the children in her class."

2. "In what way do you think she's been unfair?"

3. "Well, I don't know about that. Maybe you'd better talk to her personally."

4. "I'm sorry to hear that you feel that way. Would you like for me to talk it over with Miss Brown?"

5. "I wonder if you're being quite fair about Miss Brown."

6. Other: ____________________________

Response you would not make: I don't think that all children live in cases you can't understand. I:

SITUATION 5.

Teacher's meeting it has been decided to set up an advisory board to work with the teaching staff. For each of a group of teachers in our school there will be a classroom of which committee he or she would like to serve on. Please complete the following.

1. The Library Advisory Committee

2. The Drama Advisory Committee
SITUATION 5 - continued -

3. _____ The Playground or Athletic Events Committee
4. _____ The Outside Speakers Advisory Committee
5. _____ The Music Program Advisory Committee
6. _____ The Student Counseling Advisory Committee
7. _____ The Visual Arts Advisory Committee
8. _____ The Advisory Committee for Student Organizations
9. _____ Other:

Committee you would least like to serve on (write in one of the above or any other):

SITUATION 6.

Both you and Mary Smith, who was in some of your education classes in college, are being considered for a very desirable teaching job. You and Mary Smith meet on the street one day and stop to talk. She says: "I hear you're my rival for that job at Brookside." You reply:

1. _____ "Who, me? Why, I wouldn't even try to compete with you!"
2. _____ "Yes, I heard you'd applied, too. Well, may the best one win!"
3. _____ "Oh, I'm not too set on it. It's a nice job and all that, but I wouldn't mind too much if I don't get it."
4. _____ "I wouldn't exactly say we're rivals. Never have liked that word."
5. _____ "I've applied to 4 other school systems that look just as good."
6. _____ "You probably ought to get the job, since it's near your home and you're more familiar with the community."
7. _____ Other:

Response you would not make:

You and two other teachers are discussing the recent addition of a new teacher to the staff of your school. One of the others remarks: "I heard from Emily Green, who was a classmate of hers (the new teacher's), that she used to be pretty wild in college. She smokes and drinks and is supposed to be man-crazy." You reply:

1. _____ "I don't think that necessarily has anything to do with whether or not she's a good teacher."
2. _____ "Well, I don't know about that, but the kids sure seem to like her."
3. _____ "That's her own business, just so long as it doesn't get her in trouble."
4. _____ "I'm afraid she'll find out that risking her reputation in this town doesn't pay."
SITUATION 7. — continued

5. ___ "Are you sure that isn't just gossip?"
6. ___ "What of it? We teachers are human, too."
7. ___ "Maybe we ought to kind of take her under our wing and talk with her if she seems to be indiscreet."
8. ___ "I think we'd better warn her about how this community is about such things."
9. ___ Other:

Response you would not make: ________________________________

SITUATION 8.

You and several other teachers are discussing basic objectives in education. The discussion has been lively, with everyone putting in his "two-cents' worth". Someone then suggests: "Let's each of us state what he thinks is the most important goal of the teacher."

Your statement is:

1. ___ "Teaching pupils to think for themselves."
2. ___ "Helping pupils to become emotionally stable and well-adjusted."
3. ___ "Teaching pupils how to cooperate with others."
4. ___ "Being friendly and helpful to pupils so that they can trust and like you."
5. ___ "Teaching pupils to be respectful and considerate of others."
6. ___ "Teaching pupils the most effective ways to learn both in and out of school."
7. ___ "Giving pupils as much chance as possible to explore different kinds of learning opportunities."
8. ___ Other:

Response you would not make: ________________________________

SITUATION 9.

A colleague confides to you that she (he) has had a quarrel with the person she (he) is engaged to, and tells you about the quarrel in detail. Your colleague is obviously upset and asks: "What should I do?" You answer:

1. ___ "If I were you, I wouldn't do anything right away. Just wait and see what happens."
Situation 9

2. "Well — gosh, I don't know how to advise you."

3. "I wonder why you got upset by his (her) remark in the first place. That doesn't seem to me to be anything to get upset about. I'd have joked about it."

4. "Why don't you call him (her) up and apologize, even though you might not be in the wrong. One of you has to take the first step."

5. "I can see why you're so upset. I would be, too."

6. "What have you usually done in a situation like this?

7. Other:

Response you would not make: ____________________________

situation 10

Your principal, Mr. Jones, arouses annoyance in practically all the teachers in your school because he often gets enthusiastic about a project and then seems to lose interest rapidly, so that keeping the project going is invariably left up to one of the teachers. Mr. Jones comes to you and asks if you'll help him with arrangements for a Valentine's Day program. You reply:

1. "I'll be glad to, Mr. Jones. What kind of a program did you have in mind?"

2. "Well, it sounds like a good idea, and I'd like to do it. But do you think a week is enough time to work up something the way it really ought to be done? Besides, I think each teacher already has made her own arrangements."

3. "Okay, I'll go ahead to work up some ideas and then talk with you later to see what you think of them."

4. "That sounds swell, but I wonder if you could appoint a committee of teachers and pupils so we could pool ideas. Several heads are better than one, you know."

5. "Well, I'd like to, Mr. Jones, but it seems to be like this, all the work of putting school time into this falls to me to put into the project."

6. "Sure, go ahead. I'm a hardworking fellow and enjoy the other things which gives us some ideas for a whole play."

7. Other:

Response you would not make: ____________________________
**Prediction Test I**

**Situation 1.**

You and another teacher are discussing Johnny, age 9, with whom you've both had trouble in the classroom because he's always creating disturbance by teasing the girls in seats near his. The other teacher remarks: "I get so mad at him sometimes that I could strangle him". You reply:

<table>
<thead>
<tr>
<th>Your Choice</th>
<th>Other Person's Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. &quot;You shouldn't let him bother you. He wants attention and that's his way of getting it.&quot;</td>
<td></td>
</tr>
<tr>
<td>2. &quot;Well, he upset me a lot of the time, too, but I must admit I had a hard time keeping from laughing at some of the things he did in my class.&quot;</td>
<td>✓</td>
</tr>
<tr>
<td>3. &quot;Have you thought of giving him some special responsibility like erasing the board every day?&quot;</td>
<td></td>
</tr>
<tr>
<td>4. &quot;I can understand how you feel. Anyone would get frustrated over the problems he raises in class.&quot;</td>
<td></td>
</tr>
<tr>
<td>5. &quot;Why don't you try to interest him in class projects and class participation. That would help.&quot;</td>
<td>✓</td>
</tr>
</tbody>
</table>

**RESPONSE YOU WOULD NOT MAKE:**

1. Advise the other teacher to punish Johnny.

2. Advise the other teacher to report Johnny to the principal.

3. Criticize the other teacher for the way she deals with her children.

4. Agree with the other teacher that Johnny is a nuisance or is just ornery.
Situation J.

You are informed by one of you colleagues that Miss Main, another teacher, has complained that you have been saying things "behind her back" to influence other teachers and pupils against her. You reply to the person who told you this:

**Your Choice**

1. "Heavens! Where did she get that idea? I haven't done anything of the sort."

2. "That must be why she's been acting funny toward me. I wondered what the trouble was. Maybe I'd better go speak to her and see if I can't straighten this out."

3. "That poor woman. She has practically no friends and she's so 'onesome she'll got to any extreme, even tell lies, to get some attention."

4. "Well, I'll admit that I did complain to Mr. Jones, (the principal) though I'm not trying to influence anyone against her."

5. "There must be some mistake. I have never said anything to hurt Miss Main."

**Response You Would Not Make:**

1. State that the accusation is true and "so what"?

2. Express contempt for Miss Main as jealous, petty, or a liar.

3. Express dislike and unconcern for Miss Main.

4. State that Miss Main must be mentally unbalanced.
Situation 4.

At a P.T.A. meeting, the mother of one of the pupils in Miss Brown's class complains to you about Miss Brown's unfairness to her child. You reply:

Choice

1. "Why, I'm sure Miss Brown is impartial in her treatment of the children in her class."

2. "In what way do you think she's been unfair?"

3. "Well, I don't know about that. Maybe you'd better talk to her personally."

4. "I'm sorry to hear that you feel that way. Would you like for me to talk it over with Miss Brown?"

5. "I wonder if you're being quite fair about Miss Brown."

Other Person's Choice

RESPONSE YOU WOULD NOT MAKE:

1. Agree with the mother's accusation of Miss Brown as unfair.

X 2. List additional faults of Miss Brown to the mother.

3. Criticize the mother for her attitude to Miss Brown.

X 4. Blame the child.

5. Express disinterest in the mother's problem.

6. Promise to report Miss Brown to the principal.
Situation 6.

Both you and Mary Smith, who was in some of your education classes in college, are being considered for a very desirable teaching job. You and Mary Smith meet on the street one day and stop to talk. She says: 'I hear you're my rival for that job at Brookside.' You reply:

Your Choice

1. "Yes, I heard you'd applied, too. Well, may the best one win!"

2. "Oh, I'm not too set on it. It's a nice job and all that, but I wouldn't mind too much if I don't get it."

3. "I wouldn't exactly say we're rivals. Never have liked that word."

4. "I've applied to 4 other school systems that look just as good."

5. "You probably ought to get the job, since it's near your home and you're more familiar with the community."

6. "I'm sure that whichever one of us is accepted, it will be all right with the other person."

RESPONSE YOU WOULD NOT MAKE:

1. Belittle Mary's changes of getting the job.
2. Express the hope of winning over Mary.
3. Pretend that you're not really interested in the job.
4. State that you have influence and can "pull strings" to get the job.
5. Deny having applied for the job or knowing that Mary applied for it.
Situation 9.
A colleague confides to you that she (he) has had a quarrel with the person she (he) is engaged to, and tells you about the quarrel in detail. Your colleague is obviously upset and asks: "What should I do?" You answer:

1. "If I were you, I wouldn't do anything right away. Just wait and see what happens."

2. "I wonder why you got upset by his (her) remark in the first place. That doesn't seem to me to be anything to get upset about. I'd have joked about it."

3. "Why don't you call him (her) up and apologize even though you might not be in the wrong. One of you has to take the first step."

4. "I can see why you're so upset. I would be, too."

5. "What have you usually done in a situation like this?"

6. "I think you ought to talk the thing over together."

7. "I honestly don't know what to tell you. It's up to you and him (her) to work it out."

Reasons you would not make:

1. Evade the other person's request for advice.

2. Advise the other person to stick to her (his) guns and wait for the boyfriend (girlfriend) to make the first move.

3. Advise breaking off with the girlfriend (boyfriend).

4. Criticize the boyfriend (girlfriend).

5. State that the problem is unimportant; belittle the importance of the whole thing.

6. Criticize your colleague as being silly or childish.
Situation 2.
You're at the library in a small city in which you just recently took a new teaching job. You carry four books to be checked out at the desk. The librarian says to you: "The library rules permit you to take only two books at a time." You reply:

Your Choice

1. "Oh, I'm sorry, I didn't know there was such a rule. I'll take back two of the books."

2. "I see. Okay, I guess you'll be seeing a lot of me around here then, because my work requires that I check through several books at a time. I won't mind working here -- think you can put up with it?"

3. "I'm sorry, I didn't know of the rule. Do you think I could make arrangements to take out more books?"

4. "I see. Well, I'm a new teacher at ___ School. You have a special arrangement with the school staff, don't you?"

REASON YOU WOULD NOT MAKE

1. Criticize or ridicule the rule or the library.

2. State that teachers should be allowed special privileges.

3. Argue with the librarian, insisting that you need all four books, etc.

4. State that you will complain to the Board of Education, your principal, or the librarian's superior.

5. Become indignant and threaten not to use this library again.
Situation 5.

At a teacher's meeting it has been decided to set up an advisory committee, composed of members of the teaching staff, for each of a variety of activities in your school. Each teacher is given a choice as to which committee he or she would prefer to serve on. You decide on (check one):

<table>
<thead>
<tr>
<th>Your Choice</th>
<th>Other Person's Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Library Advisory Committee</td>
<td></td>
</tr>
<tr>
<td>2. The Drama Advisory Committee</td>
<td></td>
</tr>
<tr>
<td>3. The Playground or Athletic Events Committee</td>
<td></td>
</tr>
<tr>
<td>4. The Music Program Advisory Committee</td>
<td></td>
</tr>
<tr>
<td>5. The Student Counseling Advisory Committee</td>
<td></td>
</tr>
<tr>
<td>6. The Visual Aids Advisory Committee</td>
<td></td>
</tr>
<tr>
<td>7. The Advisory Committee for Student Organizations</td>
<td></td>
</tr>
</tbody>
</table>

**REASON WHY YOU WOULD NOT CHOOSE**

(Place an "X" beside one of the above.)
PREDICTION TEST

Situation 7.

You and two other teachers are discussing the recent addition of a new teacher to the staff of your school. One of the others remarks: "I heard from Emily Green, who was a classmate of hers (the new teacher's), that she used to be pretty wild in college. She smokes and drinks and is supposed to be mono-crazy." You reply:

**Choice**

1. "That's her own business, just so long as it doesn't get her in trouble."

2. "I'm afraid she'll find out that risking her reputation in this town doesn't pay."

3. "I don't think that necessarily has anything to do with whether or not she's a good teacher."

4. "Are you sure that isn't just gossip?"

5. "Well, I don't know about that, but the kids sure seem to like her."

6. "Part of it in teachers are human, too."

7. "Maybe we ought to keep her under our wing and talk with her if she seems to be indiscreet."

**Other Person's Choice**

**Exercise You Would Not Make**

1. Express concern over your own reputation if you associate with her, or over the school's reputation.

2. Accept Emily Green's statement without question.

3. Criticize the speaker for spreading gossip.

4. Recommend that the new teacher be reported to the Board of Education or that she be fired.

5. Suggest evading or making an outcast of the new teacher.
PREDICTION TEST

Situation 8.

You and several other teachers are discussing basic objectives in education. The discussion has been lively, with everyone putting in his "two-cents' worth." Someone then suggests: "Let's each of us state what he thinks is the most important goal of the teacher." Your statement is:

<table>
<thead>
<tr>
<th>Your Choice</th>
<th>Other Person's Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. &quot;Teaching pupils how to cooperate with others.&quot;</td>
<td>3.</td>
</tr>
<tr>
<td>4. &quot;Giving pupils as much chance as possible to explore different kinds of learning opportunities.&quot;</td>
<td>4.</td>
</tr>
<tr>
<td>5. &quot;Being friendly and helpful to pupils so that they can trust and like you.&quot;</td>
<td>5.</td>
</tr>
<tr>
<td>6. &quot;Teaching pupils the most effective ways to learn both in and out of school.&quot;</td>
<td>6.</td>
</tr>
<tr>
<td>7. &quot;Prepare pupils to go out into the world and to be able to meet and solve life's problems.&quot;</td>
<td>7.</td>
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</tbody>
</table>

R.G.S. CASE YOU WOULD NOT TAKE:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discipline; i.e., behaving, respect for elders, obedience, being quiet, etc.</td>
<td>1.</td>
</tr>
<tr>
<td>2. Teaching of subject matter.</td>
<td>2.</td>
</tr>
<tr>
<td>3. Seeing to it that pupils make high marks and that they pass.</td>
<td>3.</td>
</tr>
<tr>
<td>4. Indoctrinating pupils with one's own personal ideals.</td>
<td>4.</td>
</tr>
</tbody>
</table>
Situation 10.

Your principal, Mr. Jones, arouses annoyance in practically all the teachers in your school because he often gets enthusiastic about a project and then seems to lose interest rapidly, so that keeping the project going is invariably left up to one of the teachers. Mr. Jones comes to you and asks if you'll help him with arrangements for a Valentine's Day program. You reply:

Your Choice

1. "I'll be glad to, Mr. Jones. What kind of a program did you have in mind?"

2. "Okay, I'll go ahead and work up some ideas and then talk with you later to see what you think of them."

3. "That sounds swell, but I wonder if you could appoint a committee of teachers and pupils so that we could pool ideas. Several heads are better than one, you know."

4. "Sure, be glad to. Saw a howlingly funny movie cartoon the other night which gives me some ideas for a little play."

5. "Well, I'd like to, Mr. Jones, but my mother's been ill, so I don't have the amount of outside-school time right now that I'd like to put into the project."

Other Person's Choice

1. ______________________

2. ______________________

3. ______________________

4. ______________________

5. ______________________

RESPONSE YOU WOULD NOT MAKE:

1. Refuse, without offering an explanation.

2. Refuse on the grounds of not having time, or of being busy.

3. Refuse, with a hint, or a direct statement, about Mr. Jones' undependability.

4. Suggest that Mr. Jones do it himself.
I. Name of Predictsee: __________________________

Pick out, from your list of "Constructs", the terms which apply to the person you have chosen to predict and write them in here:

1. 2
2. 5
3. 12
4. 20
5. 22
6. 28
7. 32
8. 33
9. 34
10. 35

II. Predictor Constructs

For each of the situations, write in the number or numbers, from the above list, of the terms which apply to that situation:

Situation 1:
  a. _______________________
  b. _______________________

Situation 2:
  a. _______________________
  b. _______________________

Situation 3:
  a. _______________________
  b. _______________________

Situation 4:
  a. _______________________
  b. _______________________

Situation 5:
  a. _______________________
  b. _______________________

Situation 6:
  a. _______________________
  b. _______________________

Situation 7:
  a. _______________________
  b. _______________________

Situation 8:
  a. _______________________
  b. _______________________

Situation 9:
  a. _______________________
  b. _______________________

Situation 10:
  a. _______________________
  b. _______________________

...
APPENDIX C

Forms Used in Fixed Research
Part B: Construct Sorts II

Instructions: The numbers grouped in the following series of items refer to the numbers corresponding to the names you have written down in Part A.

In each of the following items, 1 to 25 inclusive, you are given three numbers. For this part of the procedure, you are to think about the three, and only three, people whose names correspond to the three numbers given for each item.

Having these three people in mind, ask yourself the question: "In what outstanding way are two of these three people similar and different from the third?"

When you have decided on the way in which two -- any two -- are similar and different from the third, write the word or phrase which describes the similarity in the corresponding blank under "CONSTRUCT". If you can't put it in one word, use more, but please be brief. Use your own terms, those which are most meaningful for you. You may use slang or whatever terms are easiest for you.

Next, draw a circle around the two numbers corresponding to the two people who are similar in the way you've described.

Finally, write into the corresponding blank under "CONTRASTING CONSTRUCT" the term that describes the difference between the third person and the other two. This term should be the opposite of the term under CONSTRUCT, but you may find in some cases that it isn't. Therefore, after each item, draw a circle around "O" if the "CONTRASTING CONSTRUCT" is the opposite of the "CONSTRUCT", and a circle around "NO" if the "CONTRASTING CONSTRUCT" is not the opposite.
INTERPERSONAL SITUATIONS QUESTIONNAIRE
Psychology 407

Instructions
Following are described ten situations in which you might at some time find yourself. For each situation, several different responses are suggested. You are to check the response which comes closest to how you would be most likely to react in the situation. On reading the responses, you may find it quite hard to make a choice, because all the responses are "good" ones; that is, no responses are included which would not be acceptable to the majority of students and teachers in Education. This means that the basis on which you make your choice can and should be the way you would be most likely to feel and react in the situation, instead of how you think you "should" respond or the way other people might think you "should" respond.

SITUATION 1.
You and another teacher are discussing Johnny, age 8, with whom you've both had trouble in the classroom because he often creates disturbance by teasing the girls in seats near his. The other teacher remarks: "I get so mad at him sometimes that I could shake him. You reply:

a. "A person really needn't be upset by that. Johnny simply needs attention and that's his way of getting it." a.

b. "Well, he used to upset me a lot of the time, too, but I must admit I had a hard time keeping from laughing at some of the things he did in my class." b.

c. "Have you thought of giving him some special responsibility, like erasing the board every day?" c.

d. "I used to try to interest him in class projects and class participation. That seemed to help some." d.

SITUATION 2.
You're at the library in a small city in which you just recently took a new teaching job. You carry 4 books to be checked out at the desk. The librarian says to you: "The library rules permit you to take only two books at a time." You reply:

a. "Oh, I'm sorry, I didn't know there was such a rule. I'll take back two of the books." a.

b. "I'm sorry, I didn't know of the rule. Do you think I could make arrangements to take out more books?" b.

c. "I see. Well, I'm a new teacher at ___ School. You have a special arrangement with the school staff, don't you?" c.

d. "That sounds like a sensible rule. It probably gives better circulation of your books." d.
SITUATION 3

You are informed by one of your colleagues that Miss Main, another teacher, has complained that you have been "saying things behind her back" to influence other teachers and pupils against her. You reply to the person who told you this:

a. "That must be why she's been acting funny toward me. I wondered what the trouble was. Maybe I'd better go speak to her and see if I can't straighten this out." a

b. "Well, I did complain to Mr. Jones (principal) about the way she sometimes talks to my pupils in the hall, but I'm certainly not trying to influence anyone against her." b

c. "There must be some mistake. I have never said anything to hurt Miss Main." c

d. "Her accusation isn't true. Evidently she resents me for some reason. Do you have any idea what the reason might be?" d

SITUATION 4

At a P.T.A. meeting, the mother of one of the pupils in Miss Brown's class complains to you about Miss Brown's unfairness to her child. You reply:

a. "In what way do you think she's been unfair?" a

b. "Well, I don't know about that. Maybe you'd better talk to her personally." b

c. "I'm sorry to hear that you feel that way. Would you like for me to talk it over with Miss Brown?" c

d. "I think it would be best if you and Miss Brown and our principal got together and tried to straighten out the problem." d

SITUATION 5

At a teachers' meeting it has been decided to set up an advisory committee, composed of members of the teaching staff, for each of a variety of activities in your school. Each teacher is given a choice as to which committee he or she would prefer to serve on. You decide on (check one):

a. The Library Advisory Committee

b. The Drama Advisory Committee

c. The Playground or Athletic Events Advisory Committee

d. The Music Program Committee

e. The Student Counseling Advisory Committee

f. The Visual Aid Advisory Committee

g. The Advisory Committee for Student Organizations
SITUATION 6.

Both you and Mary Smith, who was in some of your education classes in college, are being considered for a very desirable teaching job. You and Mary meet on the street one day and stop to talk. She says: "I hear you're my rival for that job at Brookside." You reply:

a. "Yes, I heard you'd applied, too. Well, may the best one win."  
b. "I wouldn't exactly say we're "rivals". That's an unpleasant word — never have liked it!"  
c. "You probably ought to get the job, since it's near your home and you're more familiar with the community."  
d. "That's right. What do you think of Brookside?"

You and two other teachers are discussing the recent addition of a new teacher to the staff of your school. One of the others remarks: "I heard from a former classmate of hers that this new teacher used to be pretty wild in college. She smokes and drinks and is supposed to be man-crazy." You reply:

a. "That's her own business, just so long as it doesn't get her in trouble."  
b. "I don't think that necessarily has anything to do with whether or not she's a good teacher."  
c. "Are you sure that isn't just gossip?"  
d. "Well, I don't know about that, but the kids sure seem to like her."

SITUATION 8.

You and several others on the staff where you teach are discussing basic objectives in education. The discussion has been lively, with everyone putting in his "two-cents' worth". Someone then suggests: "Let's each of us state what he thinks is the most important goal of the teacher." Your statement is:

a. "Teaching pupils to think for themselves".  
b. "Helping pupils to become emotionally stable and well-adjusted."  
c. "Preparing pupils to go out into the world and be able to solve life's problems".  
d. "Teaching pupils to cooperate and be tolerant of others."
SITUATION 9.

A colleague confides to you that she (he) has had a quarrel with the person she (he) is engaged to, and tells you about the quarrel in detail. Your colleague is obviously upset and asks: "What should I do?" You answer:

a. "If I were you I wouldn't do anything right away. Just wait and see what happens."

b. "I wonder why you got upset by his (her) remark in the first place. Do you think it was important enough to be upset about? I think I'd have laughed it off."

c. "What have you usually done in a situation like this?"

d. "I can see why you might be upset, I would be too. I don't know — maybe you and he (she) ought to talk the thing over together."

SITUATION 10.

You have completed plans for a motor trip with friends during the Spring vacation. The day before vacation starts, your principal calls you in and asks you to serve as representative of the school on a committee which will spend the Spring vacation drawing up plans for the construction next year of a new school building. Your reply is:

a. "Well, I certainly feel honored that you've asked me to serve, but I've already made arrangements for the vacation which I can't very well change now."

b. "Sounds like a good opportunity for us teachers to have a say in the building plans. I've already made arrangements for the vacation, but I might be able to change them. Will it be all right if I called you later this evening?"

c. "Why, yes, I'd be delighted to serve on the committee. When will the first meeting be held?"

d. "I'm honored that you've asked me to serve, knowing that all the teachers are interested in the plans. I'm wondering, though, if Mr. Green might not be better qualified, since he's been with the school longer and has some definite ideas as to what we need in the way of new facilities."
<table>
<thead>
<tr>
<th>Situation 1</th>
<th>Situation 2</th>
<th>Situation 3</th>
<th>Situation 4</th>
<th>Situation 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>abcde</td>
<td>abcdefg</td>
<td>abcde</td>
<td>abcde</td>
<td>abcde</td>
</tr>
</tbody>
</table>

Why? Check below:

Construct Contrast

1. ________
2. ________
3. ________
4. ________
5. ________
6. ________
7. ________
8. ________
9. ________
10. ________
11. ________
12. ________
13. ________
14. ________
15. ________
16. ________
17. ________
18. ________
19. ________
20. ________
I, Susanne Poch, was born in Milwaukee, Wisconsin, May 29, 1922. I received my secondary school education at North Division High School in Milwaukee, Wisconsin. My undergraduate training was received at the University of Wisconsin in Milwaukee and the University of Wisconsin in Madison, where the degree Bachelor of Arts was conferred upon me in 1944. I worked toward the Master's Degree in Comparative Psychology at the University of Wisconsin concurrently with serving as Personnel Assistant at the Student Counseling Center there, and was awarded the degree Master of Arts in 1945. In the year 1946-47, I served as Psychological Intern at the New Hampshire State Hospital, following which I held the position of Psychologist on the staff of the Upper Miami Valley Guidance Center in Piqua, Ohio, during the year 1947-48. I enrolled in the Graduate School of The Ohio State University in the Fall Quarter of 1948, specializing in Clinical Psychology. From that time until January, 1952, I served successively as Graduate Assistant, Teaching Assistant, Assistant Instructor, and V. A. Trainee. During the Winter, Spring and Summer Quarters of 1952, my time has been devoted wholly to the work on my dissertation toward completion of the requirements for the degree Doctor of Philosophy in Psychology.