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A BEHAVIORAL STUDY OF PERSONALITY: THE TRANSSITUATIONAL CONSISTENCY OF BEHAVIORAL PERSISTENCE

by

© Claudio Violato

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A Behavioral Study of Personality: The Transsituational Consistency of Behavioral Persistence, submitted by Claudio Violato in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Educational Psychology.

Charles C Anderson
Supervisor

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R H Short

Douglas V. Parker

A M Westwood
External Examiner

Date November 25, 1981

DEDICATION

For my father,
Efrem Violato (1924-1978),
who only too well
knew the importance
of intervening.

ABSTRACT

Some central conceptual underpinnings of conventional personality models (psychodynamic, trait and interactional) were examined and some findings from conventional research were reviewed. It was concluded that conventional personality psychology has reached its limits as "science". An alternative approach to the conceptualization, measurement and assessment of personality was proposed. Evidence from a variety of realms of study was presented and an attempt was made to draw this evidence together to propose a personality dimension based on behavioral orientations or styles. Characteristics that are associated with this personality dimension were outlined and discussed. A particularly important behavioral trait -- behavioral persistence -- was seen to be manifest in this behavioral style.

Three basic issues or problems that are implicated in, and are central to, the retardation of progress in personality psychology were identified and discussed. These are (1) the consistency-specificity issue, (2) the instrumentation issue, and (3) the conceptualization of personality as behavioral style. Several hypotheses were proposed and tested in relation to these problems by assessing the transsituational consistency of behavioral persistence with a sample of 65 elementary school children in six distinct situations -- four "experimental" and two "naturalistic".

It was found that there was much higher consistency on

this dimension than is usual in conventional personality assessment. Moreover, it was found that behavioral consistency varied markedly for different sub-groups of the sample (gender, socioeconomic and IQ sub-groups). As a result of these findings, together with findings from a factor analysis and stepwise multiple linear regression analyses, it was concluded that personality organization and stability may vary among sub-groups of the population. The significance of these findings for the consistency-specificity issue in particular and personality assessment in general, were discussed.

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CHAPTER I

INTRODUCTION

It is widely recognized by educators and educational researchers that personality factors of both teachers and students often mediate and therefore influence educational transactions. Moreover, we have reasons to suppose that personal qualities such as the capacity or disposition to persist in efforts to overcome difficulties is highly related to achievement in many domains (Goleman, 1980; James, 1890). However, despite widespread and sustained study of it in the last sixty or seventy years, personality is only very poorly understood and the field lies in a nearly barren state. In "scientific" circles, two major classes of personality models are generally recognized as the dominant influences on research.[1] These are the psychodynamic and trait models. Both incorporate variants of the everyday sense of the existence of personal qualities which are stable over time and which more or less give order to the person's behavior across situations. However, these two classes of personality models differ in

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[1]Phenomenology may be regarded as a third class of models that has had some impact on personality theory and research. Although this class of models has had important consequences for psychotherapy, humanistic psychology and existential psychology, none of these models have been seriously considered as "scientific" models of personality. Accordingly, no systematic critical analysis of phenomenological models is undertaken in this thesis although some features of these models are referred to wherever applicable.

several ways. One of the most important of these differences is in the assessment techniques associated with them. Trait models are intimately linked with tests and questionnaires, factor analysis, correlational techniques, classical test theory and regression analyses. By way of contrast, psychodynamic models are closely associated with interviews, free association, case histories, projectives and the like, and rigorous statistical and measuremental procedures have not, as a rule, been either developed or employed in conjunction with this brand of personality theory. As is the case with any scientific theory, the viability of these approaches to personality study must be assessed by an evaluation of the evidence that constitutes their support. By implication, the evaluation of this evidence requires an investigation of the validity of the instrumentation and constructs (which are inextricably interwoven) on which these theories rest.

In the last few years, both the trait and psychodynamic models of personality have come under severe criticisms. Armed with the accumulation of extensive empirical evidence, the critics have argued that assumptions (such as that of transsituational and transtemporal stability of personality dimensions) which are central and "fundamental to the concept of personality" (Feshbach, 1978, p. 448) have been seriously undermined. As a result, psychologists are currently arguing about the status of the notion of personality and some even

refer to it as a myth (e.g., see Feshbach, 1978; also Helson & Mitchell, 1978). Indeed, the whole area of personality assessment and research has fallen on hard times. Several authors have indicated that in employing its traditional orientation, personality psychology has reached its limits as "science" (Epstein, 1979a, 1980; Feshbach, 1978; Fiske, 1974, 1978a, 1978b, 1979; Goldfried & Kent, 1972; Helson & Mitchell, 1978; Meehl, 1978; Mischel, 1968, 1977, 1979; Phares & Lamiell, 1977; Sechrest, 1976). Sechrest (1976) for example, said the following about contemporary personality study:

> ...most research -- the vast proportion of research -- in personality is inconsequential, trivial and pointless even if it is well done (p. 2).

Helson and Mitchell (1978), two years later, reported that there had been no apparent improvement:

> Personality psychology has...been seen as the domain of a little group of rational technicians who specialize in criticizing each other's measure of the insignificant, then conclude that the existence of the obvious is doubtful, then doubt whether the study of personality is worthwhile... This caricature had a base in reality (p. 579-580).

But what is the nature of the limitations of personality psychology? Fiske (1974, 1979), Travis and Violato (1981) and Violato (1978) have identified at least five interrelated factors that they consider to be responsible for giving rise to problems of such magnitude that these problems are probably not surmountable within already developed approaches. These factors are: (1) the weakness of ties between measures and the hypothetical constructs of highly abstract theories, (2) the

lack of predictive power and low reliability of data gathered through indirect assessment (the modus operandi of traditional personality research), (3) problems inherent in non-public clinical data as a basis for theory building, (4) limited agreement among theorists about the appropriate conclusions to be drawn from sets of observations, and (5) questionable construct validity due to poor reproducibility of observations either on different occasions or by different observers.

However, as recently as fifteen years ago, Cattell (1965) proudly declared that the scientific analysis of personality had finally got under way in earnest. In his book, The Scientific Analysis Of Personality, Cattell (1965) suggested that the systematizing of human knowledge about personality had gone through three historical phases. The first of Cattell's phases is the literary and philosophical phase. In this stage, personality was studied through introspection and the examination of conventional beliefs "from the first thoughtful caveman to the most recent novelist and playwright" (Cattell, 1965, p. 13). The second or "proto-clinical" phase, began with the speculations and insights of men like the French physician Janet, Breuer, his counterpart in Germany, scholars such as James, and of course, Freud. In this stage Cattell asserted, organized observation and theorizing about personality grew out of attempts to treat debilitating behavioral and emotional conditions which had no apparent organic origins. This often led to fascinating although

sometimes not demonstrably sound notions concerning personality. Finally, in Cattell's view, the third stage -- the quantitative, experimental and "scientific" phase -- began just at the turn of this century and it began to bear its fruits in the 1950's. Its main achievements however, were not to be realized until Cattell brought forth his quantitative, multivariate factor-analytic apparatus. Cattell exuberantly declared that this approach "has wedded psychology to the 'queen of the sciences', mathematics, and though the 'progeny' are not yet numerous, they are very promising" (1965, p. 24).

Fifteen years later, what can we say about the results of this wedding that had been sanctioned by Cattell? In retrospect, we see that most of the resulting progeny have been ill-conceived and some, stillborn. The offspring have been for the most part, mathematical-measuremental miscreants of sometimes trivial and almost always amorphous poorly-defined "traits", "constructs", and "motives", about which, agreement on their nature, on their definition or on standard procedures for assessing them has not been reached. In recent years, personality psychologists have been preoccupied with test construction, the reliability of these tests and methods for analyzing the data, while virtually no attention has been paid to the validity of what is being measured and studied (Fiske, 1979; Lumsden, 1976). There are other fundamental limitations as well.

Atwood and Tomkins (1976) as well as Stolorow and Atwood

(1978) have suggested that part of the reason that conventional personality psychology has amounted to what might be called a failure as science (Anderson, 1981; Koch, 1981; Meehl, 1978), may be that theory is regularly infused with the subjective focus. These writers have suggested that all personality theorists have relied on their own lives as a primary source of material for the development of their theory. The theory presented by the theorist is more of a system for understanding his or her own experiences than a system for explaining the behaviors of other people. As Atwood and Tomkins have noted,

> Every theorist of personality views the human condition from the unique perspective of his own individuality. As a consequence, personality theories are strongly influenced by personal and subjective factors (1976, p. 166).

Nevertheless, in recent reconceptualizations, the so-called "interactional" model of personality has been proposed as a way through which our understanding of personality may be significantly increased (Endler, 1973, 1977; Endler & Magnusson, 1976a, 1976b). Indeed, this model for personality research has been gaining noticeable popularity in recent years and some (Endler, 1973) have even claimed that "interactionism" constitutes a new scientific paradigm in the Kuhnian sense (Kuhn, 1962). However, the interactional model suffers from the same serious shortcomings which were discussed above (Buss, 1977; Howard, 1979; Olweus, 1977). Rather than a "new paradigm" for personality, interactionism

as it is currently employed represents only a small conservative shift from the more traditional personality approaches (Violato, 1978) and seems to have brought more confusion than clarity to personality psychology (Mischel, 1973a; Olweus, 1977; Travis & Violato, 1981). This approach, like others which have been suggested (e.g., Alker, 1972; Bem, 1972; Tyler, 1959; 1965), fails to provide for the crucial changes needed in personality investigation: methodological and measurement improvements, reconceptualization of the person and the situational factors in the B=f(P,S) function, and refinement of the discourse connected with vital issues which have been debated for decades.

Despite Cattell's (1965) notions about supposed historical progress, the history of personality psychology remains, to a large extent, a history of a continuous debate between those attempting to demonstrate that behavior is situation specific and those trying to show that personality "traits" show both transtemporal and transsituational stability (Epstein, 1980; Feshbach, 1978). The empirical evidence has, for the most part, failed to provide support for the belief in the transsituational consistencies of behavior which is logically implicated in the trait position (Argyle, 1975; Bowers, 1973; Mischel, 1968, 1973a, 1977, 1979; Travis & Violato, 1981). However, these results may be, as has long been suspected (if not demonstrated), an artifactual result of the indirect assessment techniques involving the use of

projectives and other tests and questionnaires (Tryon, 1979; Wallach & Legget, 1972). Accordingly, an attempt is made in the present thesis to suggest an alternative approach to personality investigation based on direct assessment of observable behaviors in natural and contrived situations of particular interest. More specifically, a personality dimension based on accumulated evidence is suggested; and of particular concern is the extent to which people consistently manifest behavior which can justify the postulation of two behavioral orientations, styles, or "types". The present study then, focuses on the so-called consistency-specificity issue by trying to assess empirically the degree to which one personality dimension, behavioral persistence in elementary school children, shows stability in a wide range of situations when it is directly assessed. By restricting attention to single dimensions which have socio-cultural import in particular areas of endeavour and by avoiding the encompassing or molar theorizing which foreclose on potentially useful alternative conceptions, some major problems may be surmounted. Instrumentation innovations may also be possible.

In Chapter II, some conceptual underpinnings of conventional personality models (psychodynamic, trait and interactional) are examined and some findings from conventional research are reviewed. Chapter III begins with a discussion of the theoretical perspectives of an alternative approach to the conceptualization of personality. Evidence

from a variety of realms of study is then presented and an attempt is made to draw this evidence together to propose a personality dimension based on behavioral orientations or styles. Characteristics or factors that are associated with this personality dimension are outlined and discussed in the final part of this chapter. In Chapter IV, research questions pertaining to the proposed personality dimesion are outlined. Specific hypotheses are delineated and the research design used to test these hypotheses is described. The final chapter contains a presentation of the results of the empirical investigation and ends with a discussion of the significance of the findings for the consistency-specificity issue in particular and personality assessment in general.

CHAPTER II

THEORETICAL ORIGINS OF THE PROBLEM AND REVIEW OF RELATED LITERATURE

There are two domains of phenomena that can be distinguished within the general area of personality psychology. One domain consists of the study of verbalized perceptions and attributions of persons while the other encompasses the study of "discrete acts" or observable behavior. The vast majority of research in personality has been done within the first domain while the second domain has gone virtually unexplored (Fiske, 1979). The two classes of models that are generally recognized as having greatly influenced research and theory in personality psychology rely, almost exclusively, on data from the first domain. An analysis of these approaches, the trait, psychodynamic, and interactional models, lays bare some of the sources of the problems of personality study.

The Trait Model

According to the classic trait model of personality, observable behaviors are ordered by general orientations (traits) to the world which are acquired in the first few years of life and persist throughout. These so-called traits are used to explain observed behaviors (Endler, 1973, 1975, 1976, 1977; Endler & Magnusson, 1976a, 1976b; Ekehammer, 1974;

Mischel, 1968, 1973a). Proponents of the trait model of personality would consider the factors that determine this behavior, to be within the person. Furthermore, they suppose that these factors serve as a predispositional basis for consistency in behavior in different situations. Accordingly, in the description of individuals, the interest, for those who adhere to the trait model, lies in the relation between responses and the latent dispositions for which the responses are supposed to be indicators. So, in addition to providing a description of personality dimensions such as shyness, aggressiveness, dependency, introversion, anxiety and the like, attempts are made to measure traits; and differences in such measurements are used to explain observed individual differences in present or future behavior. It is assumed then, that traits are the main source of behavioral differences. Also, it is further assumed that the rank order of individuals as determined with respect to a certain trait is more or less consistent across situations (Stagner, 1976, p. 121). For example, if persons A,B,C,D and E are rated on a measure of aggressiveness and ranked 1,2,3,4 and 5 respectively, it is assumed that these people would tend to maintain this rank order on this trait in a variety of situations. That is, person A would tend to be consistently more aggressive than person B, person B would tend to be more aggressive than person C, person C more than person D and so on. Such assumptions are maintained by trait theorists since they

emphasize that individual behavior is related primarily to factors within the person. Accordingly, individual differences in overt behavior are considered to be largely independent of the situation in which the behavior occurs (e.g. Allport, 1966, p. 1).

Assumptions of this sort led Allport (1937), Thurstone (1947), Cattell (1950), Stagner (1976) and others to conceive of traits as general and enduring predispositions to respond independently to stimuli specific to the situation in which the person finds herself. Within this conception, traits became the basic units to be studied in personality. Cattell (1950, 1957, 1965) took this a step further and distinguished between surface traits -- overt trait elements or responses -- and source traits (the underlying variables or causal entities that determine the surface responses).

With regard to the ontogenetic or developmental aspects of personality, trait theorists consider traits to be stable dispositions which are affected to some degree by maturation but are not markedly influenced by environmental stimuli (e.g. Epstein, 1977, p. 83). According to this conception then, there is little opportunity for major changes in personality once the traits have become stabilized in the individual (Endler & Magnusson, 1976a, 1976b). One of the central and fundamental assumptions of the trait model therefore, is that traits show both transtemporal and transsituational stability.

Many authors have evaluated the trait position (Argyle,

1975; Argyle & Little, 1972; Bowers, 1973; Byrne, 1974; Endler, 1973, 1975, 1976, 1977; Endler & Magnusson, 1976a, 1976b; Ekehammär, 1974; Fiske, 1974; 1978a; 1979; Magnusson & Endler, 1977; Mischel, 1968, 1969, 1972, 1973b, 1977, 1979; Pervin, 1968, 1978; Vernon, 1964) and have indicated that there is little support for the belief in the transsituational consistency of behavior. Personality validity coefficients obtained from a number of methods and various variables such as leadership, anxiety, hostility, rigidity, self-confidence and honesty, range from 0.20 to 0.50 with a mean coefficient value of 0.30 (Endler, 1973; Mischel, 1968, 1969). The various research methods however, all shared several critical features, namely, the indirect measurement of hypothetical constructs. These common features form the basis from which sources of criticisms of the research methods arise. Much of the above mentioned research employed the strategy of "measuring" personality constructs such as traits using tests, questionnaires and "personality inventories". When one assumes, as many of the aforementioned researchers have, that psychological tests measure "deep and enduring qualities", one commits what Tryon (1979) has called the "test-trait fallacy". This notion bears some examination.

In Tryon's (1979) words, "the test-trait fallacy is to presume that the test scores provide measures of enduring and generalized characteristics of the person, called traits":

> ...The test-trait fallacy begins with the assumption that test scores are trait measures. The second

> assumption is that trait measures are basic properties of the person. It easily follows that test scores reflect basic properties of the person. This sequence essentially converts a dependent variable into an independent variable; hence a measurement is reified into a causal force (p. 402).

Tryon (1979) has identified Cattell's writings as excellent examples of the test-trait fallacy in the area of personality testing. Using pencil and paper tests, Cattell (1950, 1957, 1965) obtained a large number of responses from many people and factor analyzed these test scores into fewer variables. These first-order factors were then reduced further by factor analysis to fewer second-order factors. Cattell then "employed the test-trait fallacy, that test scores provide trait measures, to conclude that he had discovered 'the primary source traits of personality'" (Tryon, 1979; p. 403). Not only Cattell, but all other trait theorists who have employed tests, questionnaires and inventories to presumably measure enduring and generalized characteristics of the person (traits), have committed the test-trait fallacy as well.

Seen in this light then, it is not surprising that such poor validity coefficients of traits ("discovered" with tests or questionnaires) as mentioned above have resulted, when traits have been assessed with reference to actual behavior. Efforts which attempt, within the framework of conventional trait theories, to address the issue of whether actual behavior is situation specific or is transsituationally consistent (by using tests and questionnaires to measure "personality dimensions") become completely untenable.

From the foregoing discussion it becomes clear that although cross-situational consistency of behavior is logically implicated in the trait position, it is not empirically supported. The empirical evidence then, gives rise to serious questions about some of the assumptions which are central and fundamental to the trait theory of personality and its measurement techniques.

The Psychodynamic Model

Psychodynamic theories, the precursors of trait theories, rest on the assumption that there is a basic personality core which serves as a predispositional basis for behavior in all situations (Berne, 1961; A. Freud, 1946; Freud, 1900, 1910a, 1910b; Hall & Lindzey, 1970).

Unlike the trait theorists who assume that the rank order of individuals with respect to a certain behavior is consistent across different situations, proponents of the psychodynamic model do not always assume this. Rather, the latter theorists hold that emmitted behavior is mediated through intrapsychic defense mechanisms; situational stimuli elicit certain psychic or covert defense mechanisms which in turn, determine the overt responses (e.g., Erikson, 1963; Freud, 1900, 1910a, 1910b). Nevertheless, like the trait theorists, proponents of the psychodynamic position emphasize that individual behavior is manifested as the phenotypic expression of underlying intrapsychic genotypic structures

within the person. Individual differences in behavior are considered to be a function of differences in the intrapsychic organization of latent dispositions within the individual.

The trait and psychodynamic positions differ markedly with respect to the ontogenetic or developmental aspects of personality as it is manifested in actual, present day behavior. The trait theorists pay less attention to developmental aspects than do the psychodynamic theorists. For followers of the psychodynamic tradition, the latent dispositions determining actual behavior are seen as having been formed on the basis of early interpersonal experiences that have modified the expression of inherited instincts or motivational forces (Hall & Lindzey, 1970). As already mentioned, adherents of the trait position hold that environmental factors are not of primary importance in influencing the development of the latent dispositions which are manifested in expressed behavior. Thus, environmental stimuli are not considered to be particularly important in affecting emitted responses.

Psychodynamic theorists have shown little interest in the "measurement problem" (Mischel, 1973a). Data gathering procedures for the psychodynamic theorist entails interviews, the use of projectives, free association, dream analysis and so forth.

Personality within the psychodynamic conception, describes the inferred, hypothesized, mediating internal

states, structures, and organization of individuals. Accordingly, it is contended that all responses from a person ultimately reveal his enduring basic problems and personality if the underlying meaning of behavior is interpreted properly. As Mischel (1968) pointed out, adherents to this variety of theory believe that in unstructured, ambiguous or projective situations, the person's responses reveal his basic personality configuration. All aspects of his behavior are interpreted as potentially revealing the basic "underlying" personality organization (Hall & Lindzey, 1970).

Psychodynamic theorists, unlike trait theorists, long ago rejected the idea of behavioral consistencies across situations (Mischel, 1973a). Instead, they emphasize that behavior varies but that diverse behavioral patterns serve the same enduring and generalized underlying dynamic or motivational dispositions. The search for dispositions thus rests on a distinction between surface behaviors and the motives that they serve. This involves the distinction between the phenotypic and genotypic and entails an indirect rather than a direct measurement procedure (Mischel, 1968). The psychodynamic approach thus shares with the trait approach a disinterest in behaviors except as they serve as signs of generalized dispositions.

The utility of this "direct sign" approach to dispositions depends on the inference provided by the clinical judge. The reliability and validity of the clinical judgment

then, becomes critical. Mischel (1968, 1969, 1973b) has investigated in detail the extensive empirical studies on the issue of the utility of clinical judgments in inferring broad dispositions indirectly from the symptomatic signs and unravelling disguises in order to uncover the motivational dispositions that might be their roots. Mischel concluded:

> Surveys of the relevant research generally showed that clinicians guided by their concepts about underlying genotypic dispositions have not been able to predict behavior better than the person's own self-report, simple indices of directly relevant past behavior, demographic variables, or, in some cases, their secretaries (1973b, p. 339).

Evaluation of the Trait and Psychodynamic Models

Notwithstanding the grim evaluations of the psychodynamic and trait models that have been passed down in the last few years, certain proponents of these models of human personality, staunchly defend the theories (e.g. Epstein, 1977; Stagner, 1976; Wachtel, 1973). Their defense focuses on personality theories as models of psychological processes while they haven't come to grips with the concerns of the critics who have focused on the measurement models that are relevant to these theories. Considerable controversy has arisen in evaluating and interpreting the results of personality research then, because of this frequent failure to distinguish between the theories as models of psychological processes and the relevant measurement models. The empirical studies have, in the main, failed to provide evidence for

transsituational consistency of behavior (Bandura, 1977; Endler, 1973, 1977; Endler & Magnusson, 1976a, 1976b; Fiske, 1974, 1979; Mischel, 1968, 1969, 1977, 1979; Peterson, 1968; Travis & Violato, 1981). The criticisms of trait and psychodynamic models based on these results have been directed at the trait and psychodynamic measurement models (or rather, the lack of a measurement model in the case of the psychodynamic theories), while the defenders of traits have focused on the trait and construct personality theory.

Adherents to the psychodynamic perspective have depended upon interviews, case histories and idiographic verbal descriptions. Those who have attached themselves to its offspring, the trait model, have relied on questionnaires, ratings and tests. Mischel (1968) has emphasized that the psychodynamic theorists have shown little interest in developing a measurement model based on quantitative data. The methodological shortcomings of this variety of theory then, become obvious. Thus, neither the trait model nor the psychodynamic model of human personality retain much promise as bases for research since they are not very useful for enabling one to make accurate predictions. With such considerations in mind, Tyler (1965) concluded that:

> ...the most important reason I see for questioning the adequacy of this way of looking at things is that we are no longer making the progress with it that we have a right to expect (p. 501).

change in course appears to be called for.

The Interactional Model

The widespread dissatisfaction with the trait and psychodynamic models of personality assessment and research, has produced an upsurge of interest in the so-called interactional model of personality. Even Mischel whose earlier works were primarily devoted to criticising the trait and psychodynamic positions (e.g., Mischel, 1968, 1973a), has recently come around to adopt an interaction position (e.g., Mischel, 1977, 1979). As Endler has suggested, interactionism "is probably the present Zeitgeist of research in personality" (1977, p. 345).

The interactional model focuses on the interaction between an individual and his environment. Actual behavior, in this model, is considered to be the result of an irreducible interaction between the person and the situation he encounters. In many cases, other persons may form an integral part of the situation. This does not imply that either persons or situations are unimportant sources of behavioral variance; rather, neither of these two factors alone determines behavior. The important element is the person by situation interaction unit.

The empirical evidence to support an interactionist view has come mainly from those researchers who have used the multidimensional variance components technique proposed by Endler (1966). This technique allows for the comparison of relative variance contributions by various factors. Endler and

Hunt (1968) have employed this type of analysis on the variables of anxiousness and hostility; and Endler and Magnusson (1977) have done this with respect to anxiousness. Typically, the variance components attributable to the person-situation interaction are larger than the variance components attributable to either persons or situations.

Despite a body of evidence which seems to support the notion that typically the person-situation variance is larger than either of the two main effects (Violato, 1978), there are serious shortcomings in the interactional approach as it stands today. These are discussed in the following pages.

The trait model of personality is basically a response-response (R-R) theory which rests on the assumption that the determinants of behavior reside within the person (B=f(P)). Situationism (Bowers, 1973) is a stimulus-response (S-R) model wherein it is assumed that the primary determinants of behavior are due to the specific stimuli of the situation (B=f(S)). The interactional model encompasses features of both of these since it focuses attention on the interaction between an individual and his environment. Thus, within this model, behavior is seen as resulting from both situation and person factors. While the shortcomings of the trait and psychodynamic models have been adequately demonstrated (e.g. Mischel, 1968), little criticism has been leveled at the interactional model, perhaps because of its inherent logical appeal.

Up to this point in this thesis, "interactionism" has

been discussed as a singular viewpoint, theoretical position or model. However, several variants of this orientation can be discerned in the literature on interactionism.

Buss (1977) for example, recognized the use of what he has described as two mutually contradictory definitions of interaction. The first definition represents a mechanistic world view while the second represents an organismic viewpoint -- the two being derived from putatively incompatible metaphysical systems. These two models are derived from four distinct perspectives or viewpoints: (1) $B=f_1(S)$ (the simple situationist model); (2) $B=f(P)$ (the simple trait model); (3) $S=f(P)$ (the phenomenological position wherein the functional situation is assumed to be a cognitive construction); (4) $P=f(S)$ (behavior theory (e.g., Skinner, 1953) whereby the differences among people are assumed to stem from variation in their environmental histories). The first or mechanistic model of interaction, combines the models $B=f(S)$ and $B=f(P)$ into the model $B=f(P,S)$ where the person and the situation co-determine behavior. Here the relation between P and S is not described but it is assumed that the relationship between (P,S) and B is unidirectional and causal. The second or organismic model, combines the remaining positions ($S=f(P)$ and $P=f(S)$) yielding the reciprocally causal relationship, $S<--->P$.

Howard (1979) has criticized Buss' (1977) analysis on the basis that Buss has failed to specify two further models of interaction which are identifiable in the literature. Figure 1

represents the four basic models of interactionism that encompass all of the theoretical positions or viewpoints of interactionism.

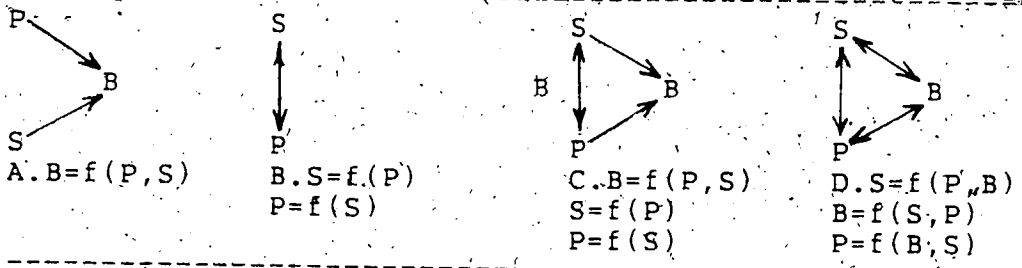

Figure 1. Four Models of Person-Situation Interaction (Adapted from: Howard (1979), p. 192)

Figure 1A represents Buss' "mechanistic" model and Figure 1B represents his "organismic" model. Figures 1C and 1D explicitly express the assumption that mutual causation exists among all three variables (P,B,S) while Figures 1A and 1B represent the models of interactionism which do not explicitly take these mutual causations into account. The dialecticians who have debated the validity of interactionism, have frequently failed to specify which model was being considered (e.g., Endler & Magnusson, 1976a, 1976b). The various models have been tacitly treated as interchangeable. This has led to considerable confusion and futile squabbling among the proponents of the various view-points.

Olweus' (1977) analysis of this point helps to clarify the shortcomings of the "modern" interactionist position. He also identifies four separate meanings of interaction which

can be related to the four models depicted in Figure 1. The first position as represented by Endler (1973) is one of unidirectional interaction. Here it is a question of how two or more independent variables (person and situation variables) are "combined" or "connected" in their relationship to a dependent variable (individual behavior or reactions). This is the model represented in Figure 1A. The second interpretation of interactionism (represented by Bowers (1973)) focuses on the inseparability of the individual-environment system and emphasizes the interdependency between the person and environment. The person and environment are assumed to be interdependent insofar as the person perceives or construes the situation "in a fashion that makes it impossible ever to completely separate the environment from the person observing it" (Bowers 1973, p. 328). This is the interpertation of interaction as schematically represented in Figure 1B. The third kind of interaction which is reciprocal or dynamic interaction is depicted in Figures 1C and 1D in its variant forms. Here the person and situation are seen as mutually influencing one another resulting in specific behavior (Figure 1C). In its second variant, the person and situation are seen as mutually influencing one another: resulting behavior affects the person's subsequent response, which in turn can transform the situation. This in turn again affects the person, which again influences the person's response, and so forth (Figure 1D). This position may be seen in some of

Mischel's work (1977, 1979). The final interpretation or meaning of the term "interaction" is that represented by the "modern" interactionists (Ekehammar, 1974) and is a special case of Buss' "mechanistic" model in Figure 1A where B=f(P,S). This meaning of interactionism is the conventional one as used in analysis of variance where two independent variables (person and situation variables in the interactionists' case) "combine" to contribute portions of the variance to the total pool of variation in the system. This strategy for "personality" research was initially proposed by Endler and Hunt (1966, p. 341) and has since been championed by Endler and his colleagues.

As in Olweus' (1977) first meaning, Buss' (1977) mechanistic model and the model depicted in Figure 1A, this Endlerian version of interaction is of a unidirectional sort but with quite a special character in that it is based on an empirical method which is basically a theoretical. Since most (if not all) the research on "interactionism" has been done within this restrictive, empirically based, a theoretical method, and since it has been proposed as a useful method for resolving some central and persistent problems of personality research and assessment (Endler, 1973; Endler & Hunt, 1966) which are essentially of a theoretical-conceptual nature, this conception of interactionism receives special attention below. The more complex models of interactionism which explicitly posit mutual or reciprocal influence or determination between

persons, situations and behavior, incorporate a remarkably abstract sense of causality and seem to lose track of what specifically is caused, influenced or determined, and what is constant through time. Accordingly, the conceptions of the triangular affairs represented by figures 1C and 1D do not move far beyond purely conceptual or metaphysical systems. That is, no research has been designed or generated within these models in attempts to specify the "f" or function between persons and behavior, situations and behavior, and behavior and situations. Accordingly, the term "interactionism" or "interaction" in the following pages refers specifically to the Endlerian unidirectional, analysis of variance based conception of interactionism.

Unidirectional Interaction

In recent publications (Endler, 1977; Endler & Magnusson, 1976a; 1976b), Endler and his colleagues have been touting "interactionism" as a new and revealing conceptualization. However, the idea that behavior is a function of both the environment (situation) and the organism (person) is hardly new (e.g., see Ekehammar, 1974). Nevertheless, Endler (1973) goes as far as assigning interactionism as manifested in personality research, to new paradigmatic status. Many others before him however, have understood the importance of situations in personality research. Even Cattell (1965) for example, nearly a decade earlier, readily recognized the

importance of situational stimuli. Thus, he wrote:

> Lack of allowance for the situation is one of the main causes of misjudging personality (p. 27).

At the same time, Mischel (1973a) has indicated that the language of interactionism simply provides another way of talking about the idiosyncratic organization of behavior and its dependence upon specific conditions. Before its proponents can claim to provide a new direction for personality theory and research, interactionism must be predictive rather than merely descriptive. It must on an a priori basis, predict moderator variables from classes of behavior or reactions that will be useful in analyzing behavior. The interaction studies that have been recently conducted, as Endler (1977) readily admits, "do not tell us why [the variance is attributable to the interaction component]" (p. 352). Rather, they merely demonstrate that the interaction component accounts for more of the variance than either of the two main effects alone.

Furthermore, these studies have not as yet explained the nature of the obtained interactions between persons and situations and no one has demonstrated that accurate predictions can be made a priori about individual behavior. The attribution of the variance to the interaction component might lead one to conclude that the interactions have demonstrated consistent and predictable behaviors across a variety of situations. But this of course, is not the case. The variance component studies are descriptive but not predictive. In the absence of an account of how interactions

take place psychologically, "the emphasis on interactionism...?becomes? Little more than the proclamation of a truism" (Mischel, 1973a, p. 257).

Clearly, the basic question of how the person and situation interact in determining behavior remains to be clarified and this is, after all, the question that Anastasi (1958) posed more than 20 years ago. As we have seen, in the unidirectional version of interaction, persons and situations are treated as independent entities that combine to produce behavior. Person and evironmental factors however, do not function as independent determinants: the impact of each depends on that of the other. In addition, one can ask what in a person can be meaningfully said to be independent of his behavior? The consequences of present behavior can affect the situation in which one behaves, which will in turn, affect subsequent behavior. Thus person and environmental factors do not function as independent determinants of behavior. The modern interactionists (Endler, 1977) acknowledge that behavior is overdetermined and determinant; but persons and situations are depicted as independent causes of behavior as though behavior were only a product that does not figure in the causal process. Analyses which allow one to partial out the relative effects of a variety of factors are not possible within the "modern" version of interaction. Moreover, this model still flounders on the problem of distinguishing beteween the genotypic and phenotypic structures and dynamics

of personality and of establishing the connections between the two. The modern interactionists (e.g., Endler, 1977) have relabeled the phenotypic as "reactive variables" and the genotypic as "mediating variables".

The Role of Reactive Variables

Endler (1977) has stressed the necessity for distinguishing between behavioral variables (typically conceived of as reactive variables) and mediating variables (the hypothetical construct). For example, heart rate is sometimes treated as a reactive variable which gives some indication about the levels of anxiety (the hypothetical construct). Endler stressed that there is not necessarily a one-to-one relationship between the emitted behavior and the intrapsychic functioning at the hypothetical construct level. As we saw above, this is merely a restatement of the phenotypic-genotypic distinction made by Mischel (1968) and which has provided a conceptual trap for personality theorists.

MacCorquodale and Meehl (1948) had made this distinction between intervening variables and hypothetical constructs more than thirty years ago. According to these writers, hypothetical constructs "involve the hypothesization of an entity, process or event which is not itself observed" while intervening variables are "constructs which do not involve such hypothesization" (p. 95-96). MacCorquodale and Meehl

(1948) proposed three factors which characterize an intervening variable:

> First, the statement of such a concept does not contain any words which are not reducible to...empirical laws. Second, the validity of the empirical laws is both necessary and sufficient for the "correctness" of the statements about the concept. Third, the quantitative expression of the concept can be obtained without mediate inference by suitable groupings of terms in the quantitative empirical laws (p. 107).

Hypothetical constructs on the other hand, do not fulfill any of these three conditions. Rather, their formulation,

> ...involves words not wholly reducible to the words in the empirical laws; the validity of the empirical laws is not a sufficient condition for the truth of the concept, inasmuch as it contains surplus meaning; and the quantitative form of the concept is not obtainable simply by grouping empirical terms and functions (p. 107).

In short, the proposed role of intervening variables was that of convenience since they were seen as not having any factual content surplus to the empirical functions that they serve to summarize. In the case of hypothetical constructs however, they were seen as having a cognitive, factual reference in addition to the empirical data which constitute their support (MacCorquodale & Meehl, 1948, p. 107). Albeit often confused, this distinction between hypothetical constructs and intervening variables has formed the very foundations of the approach to personality study both within the psychodynamic and trait models as well as the more recent interactionist approach. The interactionist theorist, who like the trait

theorist, relegates observable behavior to the "reactive variable" status, faces problems. A very brief look at the development of the interactional model reveals the basis of these problems.

The interactional model was developed basically on anxiety research (Endler, 1966; Endler & Hunt, 1966; Endler & Magnusson, 1977). In recent formulations about the nature of anxiety (Endler, 1977), two components have been distinguished: trait and state anxiety. Trait anxiety is conceptualized as a hypothetical construct which is thought to be a relatively stable personality characteristic and has at various times been conceptualized as a trait, as a motive, and as a drive (Shedlesky & Endler, 1974). State anxiety is also conceptualized as a hypothetical entity but it is considered to be a transitory emotional condition. Nevertheless, anxiety, whether trait or state is viewed as a hypothetical entity within the person that "causes" behavior. This emitted behavior is at the same time dependent (to some degree) on situational stimuli.

Anxiety has in the past, been operationally defined with reference to diverse criteria and as a consequence has given rise to considerable confusion and imprecision in psychology. Sarbin (1968), one of the more incisive critics of anxiety research, takes the position that since anxiety is typically used with reference to a mental state, it becomes ontologically mythical. That is, anxiety is merely a creation

of the researcher rather than a component of the human "psyche" and as such, its nature and manifestation is not subject to verification or falsification through scientific inquiry. Sarbin goes on to suggest that inquiry must be steered away from hypothetically constructed states of mind which have been the source of much futile speculation. The modern interactionists however, still rely on the "state-of-mind" approach which leads into the intractable and complex problem of discovering the relationships between hypothetical constructs and observable behaviors which are assumed to be the phenotypic expression of these underlying intrapsychic genotypic "mental states".

Speculations concerning these internal factors lead to a galaxy of "constructs", "traits" and "dispositions" for which there is little in the way of convincing evidence. Researchers "searching" for these "states of-mind" have typically employed the strategy of construct validity.

The investigator using this approach, takes as the criterion, a particular behavior which is not intrinsically meaningful or of interest in its own right. Rather, he regards, on theoretical grounds, such "reactive variables" as "signs" or "test responses" for indexing some underlying trait, construct or disposition. Unfortunately, this search for an inner system via reactive variables, has, as Skinner (1975) put it, "proved to be one of the most fascinating wild goose chases along the path of dalliance" (p. 12).

Fiske (1974) has argued that the difficulties in making connections between hypothetical constructs and self-report and other indirectly collected data, have caused the conventional science of personality to have reached its limits. Three interrelated conditions are considered to be responsible: (1) most of the data are the products of complex interpretive judgment processes within observers; (2) the agreement between sets of observations is limited; and (3) the ties between observation and concepts is limited. In self-report data, the co-variation between specific items is low and reproducibility over occasions is poor (Meehl, 1978). In judgment by others, there appears to be little hope for improving the level of agreement when the task requires complex decision processes (Fiske, 1974). The interactionists still focus on concepts with inadequate specifications and tenuous linkages to measuring procedures. The severe limitations to progress in personality research is due to heavy reliance on words as explanatory devices, and dependence on complex observer judgments arrived at by processing diverse perceptions with low agreement between observers. Accordingly, Fiske (1974) was moved to conclude that:

> As long as this traditional orientation to the field persists, little can be done to escape these fundamental handicaps (p. 10).

Summary of Criticisms of "Modern" Interactionism

By way of summary then, "interactionism" as it is seen throughout the personality literature has been conceptualized in several different, sometimes somewhat incompatible ways. Most of the research within the interactional model is based on the Endlerian unidirectional, analysis-of-variance based conception which is essentially a-theoretical. The central question to be addressed is "how" do persons, situations and behavior interact to produce present and future behavior. The interactional model as operationalized within the source-of-variance paradigms cannot address this question (cf. Sadava, 1980). Within this model, persons are still defined with reference to hypothetical, highly abstract "constructs" and "traits" and behavior is viewed as providing "signs" or "tests" of undelying dispositions, traits or constructs. In addition, the question of the validity of what is being studied has been paid very little attention while the researchers have focussed on refining analytic techniques for data of questionable stability and validity. In conclusion, the variance component technique has contributed more confusion than clarity. It is not possible to institute adequate tests of the trait, situationism and interactional positions by means of the analysis of variance conponent technique as it is commonly used (cf. Olweus, 1977).

Personality Psychology and the Criteria of a Scientific Paradigm

Several scholars (Byrne, 1974; Cronbach, 1975; Fiske, 1974, 1978a, 1979; Goldfreid & Kent, 1972; Phares & Lamiell, 1977; Sechrest, 1976; Tyler, 1959) have indicated that personality as a science has reached its limits by employing the traditional orientation involving indirect assessment of hypothetical constructs. Fiske (1978a) has gone as far as flatly asserting that personality psychology is not and never has been a science. For the present writer, this assertion seems to have some merit in it -- especially when the state of personality psychology is analyzed in relation to Kuhn's (1962) conception of what charcterizes a scientific paradigm.

In his by now famous book, The Structure of Scientific Revolutions, Kuhn (1962) has argued that "normal science" within a discipline proceeds within the framework of a paradigm. "Paradigm" refers to the consensually agreed upon (by its practitioners) modus operandi of a scientific discipline that is made up of a set of "rules". The rules include the conceptions of the nature of the theory to be used in guiding research; they define the problems worthy of investigation; they suggest how these problems are to be investigated and perhaps even define the appropriate instrumentation to be used in research. Normal science within any paradigm, is the explication of theories within that paradigm, the collection of facts relevant to those theories

and the post hoc adjustment of theories to fit the facts if that is required. This results in a directional and cumulative enterprise for the solution of problems within the established paradigm.

However, during the process of normal science, anomalies which do not support the theories or do not fit into the conception of reality within the paradigm, begin to accumulate. As research proceeds and the anomalies accumulate to the point where they can no longer be ignored or are so dramatic in nature as to present direct affronts to the accepted assumptions, a crisis arises for the established paradigm. A revolution eventually occurs and normal science is disrupted as a new paradigm which better seems to account for the previous anomalies, replaces the existing paradigm. When the rules are once again established within the new paradigm, normal science begins again and resistance to competing views is high.[2] Thus, normal science, following a paradigm shift, sets about articulating and extending the new paradigm.

Although Kuhn's analysis is somewhat more sophisticated

[2]According to Kuhn (1962), a scientific paradigm is established by "common law procedures" rather than by fiat. For example, this is how the Newtonian paradigm replaced its predecessor, just as the Einsteinian one replaced the Newtonian paradigm. A discipline evolves into a science by virtue of the activity of its practitioners since they "practice science". Contrast this to the recent attempt (in 1979) by the American Psychological Association to establish psychology as a scientific discipline by legislation (Koch, 1981). Anderson (1981) and Anderson and Travis (1981) have also made note of the fact that psychologists have at other times been impelled to achieve scientific legitimacy by fiat or legislation.

and complex than the simplified summary presented here would suggest, his views have not been accepted uncritically. Masterman (1970) for example, charged that Kuhn's use of the concept of "paradigm" is far too vague since twenty-two different uses of this concept can be found in Kuhn's work. Kuhn (1970a, 1970b) has responded to this criticism by suggesting that the concept is useful and that most of the differences are stylistic. He has admitted however, that there is a basis for demanding a more stringent definition of the concept. Kuhn therefore has distinguished between sociological use of the term (disciplinary matrix) and a more philosophically basic one (exemplars). The disciplinary matrix refers to: (1) symbolic generalizations; (2) metaphysical models or metaphors; (3) sets of values. The exemplars provide working examples of puzzle solutions and it is here that the real cognitive content of science is located. Even with these modifications Kuhn (1970a) has maintained, the concept of paradigm still holds.

Popper (1970) has asserted that Kuhn is an "irrationalist" and that his scheme represents a less rational process of science that is actually the case. Kuhn (1970a) however, responded that his scheme accurately reflects the irrationality, or as he has suggested, more correctly, the anti rationality of science. According to Kuhn's reasoning, if science is not completely rational so be it. In fact, according to Kuhn, it may be necessary to go into [illegible] the

"narrow path of rationality" if progress is to be made.

Lakatos (1970), another of Kuhn's critics, has proposed that "revolutions" are far more frequent than Kuhn would have them but are not the dramatic events that they are made out to be in the Kuhnian conception. Kuhn (1970a) has conceded this point and acknowledged that he has stressed the dramatic and infrequent examples in his writings in order to overstate his case. Kuhn's (1962) basic position, however, has not altered significantly in response to these criticisms although he allows that often the transition from one paradigm to another may be relatively smooth and gradual.

In a Kuhnian sense then, personality psychology, because there is very little agreement about the nature of personality and how it is to be studied either within a disciplinary matrix or through the use of exemplars, looks rather less like a science than a diverse and undisciplined set of fragments of speculative material. The contents that would fall within a disciplinary matrix -- the symbolic generalizations (traits, motives, drives, needs, constructs) -- are almost limitless with very little agreement upon their definitions or nature. The metaphysical models or metaphors include diverse conceptions which range from such psychodynamic notions as the id, ego and superego which focus on the internal machinations or operations of the psyche to behaviorists' conceptions of reinforcements, conditioning, discrimination learning and so forth. The [illegible]

personality psychologists are just as disparate. Many phenomenologists and, perhaps most humanistic psychologists view man as "noble", striving towards altruistic and aesthetic goals while theorists in the Freudian tradition see man largely as an amoral creature subjected to instinctual libidinal impulses. And what about working examples of puzzle solutions (exemplars) where the real cognitive content of a science is located? There doesn't appear to be any in the study of personality. In short, the basic elements that constitute a "paradigm" of scientific endeavour are nonexistent in personality psychology. Even the squabbling factions that have aligned themselves in "schools" of "personality" each with its own theories, conceptions, instrumentaion and assessment models are in serious trouble. A recent assessment of the field (Phares & Lamiell, 1977) for example, yields the following general conclusion:

> Many feel that social psychology is in a period of crisis. There is no reason to feel things are much different for those who study personality (p. 113).

Feshbach (1978), in taking notice of the lack of progress within conventional personality study, described at once, the past and present:

> ...the history of personality study is to a considerable extent, a record of continuous debate between [those] seeking to demonstrate the generality of a particular dimension [across situations] and researchers maintaining that behavior in situations of interest is essentially determined by situation specific factors (p. 449).

Essentially personality psychology is in sad shape

However, there is no clear agreement as to whether it is a science or not. Mueller (1979) for example, pinpoints the year 1879 with the work of Wundt as marking the consensual beginning of psychology in general as a distinctive scientific discipline. Palermo (1971) has argued that "experimental psychology" has already had two scientific paradigms and the second paradigm is currently undergoing a crisis which he expects to lead to a scientific revolution. Furthermore, Palermo (1971) has asserted that clinical psychology (which presumably gives central place to personality psychology) is in a pre-paradigmatic stage of development (p. 132). Byrne (1974) has also suggested that personality psychology may be in the random fact gathering stage of a pre-paradigmatic science. Anderson (1981) has proposed that psychology is not a science in the usual sense wherein stable laws pertaining to the phenomena of interest are uncovered. Koch (1981) has offered a similar view as has Meehl (1978). Such assertions however, have not been accepted uncritically.[1] In any case, the question of whether or not personality psychology has ever

[1]Briskman (1972), Warren (1971) and Berlyne (1975) all disagree with Palermo's assertions. Briskman (1972) argued that a Kuhnian analysis is not even applicable to the area which Palermo has attempted to apply it to. Briskman (1972) concluded that "since Palermo's thesis claims the applicability of Kuhn's ideas to this case, either Kuhn is wrong or else Palermo is" (p. 89). Perhaps Berlyne's (1975) comment is more to the point in his assessment of psychology: "And if it is a sign of crisis to have people saying reiteratedly that there is a crisis, then psychology is [illegible] in a state of crisis" (p. 69).

been, or is now a scientific discipline is largely academic; sufficient disorder and problems exist to call for a change in direction.

CHAPTER III

THEORETICAL PERSPECTIVES FOR AN ALTERNATIVE APPROACH TO PERSONALITY STUDY

In the previous chapter it was concluded that as long as the conventional approaches to personality study and assessment are maintained, little can be done to overcome the fundamental handicaps which have caused personality psychology to have reached its limits. Accordingly, one can consider the possibility that the formulations and assessment procedures employed heretofore may be inadequate. Moreover, alternative strategies entailing the formualation of different questions and the employment of different procedures may yield important evidence bearing on the trait-situation issue, and other important questions in personality study.

An Alternative Approach: Direct Assessment

The approach described in this chapter is an attempt to break away from the apparently unsuccessful attempts by personality psychologists to "look inside" the organism and deal with "mental states" (cf. Skinner, 1975). These attempts to map the contours of insubstantial phenomena have produced only scattered islands of "hard" data. Sound procedures have rarely been employed and as a consequence only scattered bits of valid information have been produced. Moreover, the significance of such data is obscure since it is unusual that

personality research is attached clearly to significant problems (Mischel, 1977; Epstein, 1979a; Feshbach, 1978; Fiske, 1978a, 1979; King, 1978). Those adopting this traditional approach, have focused on amorphous poorly-defined "traits", "constructs" and "motives" over which agreement on their conceptual nature or standard procedures for assessing them has not been reached. A wide range of assessment procedures, including projectives, dream analysis, free association, interviews, tests and questionnaires and personality "inventories", have been employed. Recently, the preoccupations of personality psychologists have been with test construction, the reliability of these tests and methods for analyzing the data, while virtually no attention has been paid to the validity of what is being measured or studied (Fiske, 1979; Jackson & Paunonen, 1980; Lumsden, 1976; Tryon, 1979). As long as this traditional orientation to personality study and assessment is maintained, little can be done to overcome the fundamental handicaps which have caused personality psychology to have reached its limits. For the present writer, the first or immediate implication is the need to correct the methodological problems now so pervasive in personality psychology. But how can this be done?

Fiske has suggested some possibilities. He has proposed that the domain which is now subsumed under the heading of "personality" should be broken down into separate personologies (Fiske, 1977), sciences of personality (Fiske,

1974) or strategies of studying personality (Fiske, 1978a, 1978b). Fiske (1979) has outlined two basic domains of phenomena that could be studied separately but with "cross-fertilization" between the two. The first domain (which encompasses the trait and psychodynamic positions) consists of verbalized perceptions and attributions of persons while the second domain consists of "discrete acts" or behavior. Fiske (1979) suggested that "these approaches, each directed toward its own world or phenomena, seem clearly separate" (p. 734). Research within the first domain of phenomena relies primarily on the use of self-reports, and as such, involves a different level of analysis than does study within the second domain which focuses on other behavior which can be observed without a reliance on the verbal mediation provided by the subject. This distinction between these two sets of phenomena is crucial; for it brings into focus the necessity of exploring the almost virgin second domain of phenomena.

One possible means for generating a solid data base from which generalizations can be extrapolated, is that of systematic gathering and classification of human behavioral patterns which are general and of interest in their own right. Elms (1975) stressed this need for gathering "behavioral census" data as have other writers (Bronfenbrenner, 1976, 1979; Fiske, 1974, 1979; Goldfried & Kent, 1972; Phares & Lamiell, 1977; Sechrest, 1976; Tunnel, 1977; Wallach & Legget, 1972). This approach involves combining controlled

experimentation in standardized conditions (Cronbach, 1975) with extensive field observation in naturalistic settings (Bronfenbrenner, 1976). Another element of this approach involves keeping permanent records on film or videotape and audiotapes as well as other recording procedures. This is basically an approach borrowed from the study of animal behavior which was founded by Tinbergen (1951, 1953) and Lorenz (1950, 1952, 1961) and which has recently been extended by Eibl-Eibesfeldt (1970). The application of ethological principles to human behavior allows for the systematic gathering of data about behavioral patterns. Such analysis simultaneously allows for the classification of situations and behavior that is the content of behavioral census. Since the researcher is essentially an observer and not primarily a synthesizer or interperter, observer bias can be minimized. Thus, criterion behaviors of interest can be observed directly and a fuller understanding of them can be gained in relation to situational variables. Furthermore, behavioral tests may ultimately be developed by working backwards from criterion measures. A sampling is obtained first, after which an attempt is made to develop efficient measurement procedures for assessing the behavior-environment interactions (Goldfried & Kent, 1972).

Tunnel (1977) has offered a fairly elaborate definition of field research which incorporates three theoretically independent dimensions commonly used in field designs

"natural" behavior, "natural" settings and "natural" treatments. A natural behavior is one that is not established or maintained for the sole or primary purpose of conducting research; the behavior is part of the person's existing repertoire. The traditional methods of data collecting in personality involving self-reports are not considered to be "natural" behaviors because experimentally induced self-reports are artificial: people's everyday experience rarely entails encounters with adjective checklists or questionnaires, even if the instrument is designed to assess some "natural" behavior in the person's past (Tunnel, 1977). A "natural" setting is one that is not perceived by the subject as having been established for the purpose of conducting research. The "natural" treatment refers to naturally occuring discrete events that the subject would have experienced with or without the presence of the observer.

Investigations that combine these three dimensions of "naturalness" greatly increase both mundane and experimental realism (Aronson & Carlsmith, 1968). Accordingly, at least two advantages can be accrued by this kind of investigation: (1) the research can be made more credible to participants thereby increasing internal validity, and (2) the research can be given greater external validity (Tunnel, 1977).

Bronfenbrenner (1976), restricting himself to educational settings, has outlined three basic requisites which, he says, must be met if progress is to be made in the scientific study

of educational systems and processes. The first requirement is that research must be carried out in settings like those which Tunnel (1977) called natural settings -- it must not be restricted to the laboratory. The second requirement, designated the "ecology of education", requires the investigation of the relations between the characteristics of the learner and his environment, both in the formal educational setting and in situations which are outside the school. The "ecological experiment" constitutes Bronfenbrenner's third and final prerequisite and involves the investigation of person-environment factors simultaneously.

The present thesis is consistent with the gist of the foregoing considerations. Accordingly, an attempt is made to combine the "dimensions of naturalness" with the direct assessment of behaviors in situations of particular interest to educators and psychologists. This is the strategy (which has been paid little attention in personality research) of observing what people actually do in particular circumstances which they encounter in the normal course of their lives. Sheridan (1971) suggested that the retardation of the investigation of actual behavior originates in the "unfounded insistence" that human behavior is unmanageably complex. However, "...if one looks at human behavior with an unbiased eye, he cannot help but recognize a remarkable simplicity" (Sheridan, 1971, p. 21). The mystification of behavior by traditional personality theorists as well as by current

interactionists with their reliance on hypothetical causal entities, obscures this "remarkable simplicity" of behavior and therefore seems to beckon Occam's razor: Entia non sunt multiplicanda praeter necessitatem.

Some recent recommendations (Fiske, 1974, 1978a, 1979; Phares & Lamiell, 1977; Sechrest, 1976; Travis & Violato, 1981) which urge a shift of interest to the accumulation of "behavioral census" data on behaviors which are of practical interest and of theoretical importance, may indicate a means for circumventing conceptual and methodological confusions. The role of the so-called reactive variables which are currently treated as being phenotypic expressions of underlying genotypic predispositions, constructs or traits then, would change from that of being merely "signs" or "tests" of the underlying dispositions to that of becoming the primary units of interest. This is fundamentally different from both the received interactionist and the more conventional trait and psychodynamic procedures.

Personality in Behavioral Terms

The purpose of this section is to present and synthesize evidence from various domains of inquiry which is apparently, disparate. A "personality dimension", behavioral orientation or style which appears at the most general level of analysis as an interesting unit of behavior, is indicated by this analysis. Accordingly, a reconceptualization of personality

dimensions that seem to account for this evidence, is proposed.

A major theme which underlies much of the research in environmental psychology and which is useful for present purposes, is that of human-environment optimization (Stokols, 1978). This concept is based on a cyclical feedback model of human behavior and pertains broadly to human transactions with the sociophysical environment. Specifically, the optimization theme suggests that people orient to their environment in terms of existing goals and expectations such that they operate in their environment in an attempt to transform those conditions which are incongruent with certain expectations in order to "optimize" their environment. This "optimal environment" of course, is an ideal state which, because of myriad constraints, can never be achieved. The best that can be done is to adapt to existing conditions or to "satisfice" (Stokols, 1978) -- to achieve less than optimal improvements of the surroundings.

In this view, people are seen to act on their environment and their environment, in a reciprocal fashion, acts on them with subsequent effects on behavior. The emphasis here is placed on person-environment transactions and is essentially an "interactionist" view of human behavior.

For the purpose of the present discussion, the major interest lies in the "modes" or "styles" of orientation to the environment that can be discerned among various people. The

different styles then, represent "personality" categories viewed in behavioral terms. As is outlined in the following pages, the accumulated evidence seems to suggest that at the most general level of analysis, there is at least one dimension along which "personality" varies and can be viewed in behavioral terms.

MacFarlane (1963, 1964, 1975) reported longitudinal studies in which a large sample of subjects was studied from infancy to adulthood. The most consistent dimension among this sample obtained by clusters of variables over a long time span (2 to 16 years) related to styles of behavior: namely, "reactive-expressive" and "retractive-inhibited". Consistency and predictability were otherwise low for every other "personality" dimension measured. Thomas Chess and Birch (1970) turned up similar evidence in a report on their New York Longitudinal study on the temperament of the "easy", "slow to warm up" and "difficult" children. The most clear cut and enduring factors that they found were the "approach-withdrawal" and the "adaptability" dimensions. The approach or withdrawal category describes the tendency for a child to move towards -- approach new stimuli or to move away - withdraw from such stimuli. Adaptability refers to the ease or difficulty that a child has in adjusting to a new situation. In this same stream, Campus (1974) showed that individuals can be found to vary in behavioral consistency so that each can be classified as representative of [illegible] styles: (1) an [illegible]

coping style; and (b) a passive coping style. Similarly, Salter (1961) spoke of two major categories of personality which he called the excitatory and the inhibitory personality. The excitatory person, wrote Salter, "is direct. He responds outwardly to his environment. When he is confronted with a problem, he takes immediate constructive action" (p. 45). The inhibitory person on the other hand, displays an undue "desire for acceptance by his environment" (p. 48). According to this conception then, an excitatory person acts on his environment to transform unpleasant and bothersome conditions while the inhibitory person acquiesces to environmental conditions in an attempt to cope with bothersome or noxious stimuli or he may withdraw from them altogether.

Some recent work by Ginsburg and his associates produced data which is congruent with the thesis developed herein. Ginsburg, Pollman and Wauson (1977) conducted a study "to test the hypothesis that displays of human submission involving a diminished body stature have a higher probability of terminating attack by an aggressor than other behaviors exhibited by the child under attack during an agonistic encounter" (p. 417). This study involved videotaping male elementary school children (8-12 years old) during periods of unstructured playground activity over a 6 week period. The results indicate that a diminution of body stature provides an appeasement function since this reaction effectively inhibited

that were recorded.

Although the finding that diminution of body stature seems to provide an appeasement function is of interest in itself, perhaps even more interesting for present purposes is the characteristics of those 14 subjects that showed "threat displays and face to face interaction" (Ginsburg et al., 1977, p. 418) when attacked rather than showing acquiescence.

Perhaps, one could conjecture, some of these non acquiescing subjects may fit into the category of the interventionist behavioral style since they do not appear to readily withdraw from noxious conditions. In more recent studies, Ginsburg and Miller (1980) studied dyadic fights between children on a playground which were terminated by the intervention of a third child on behalf of the one losing the fight. This interventionist behavior was highly predictable and appeared when an aggressor continued to fight a submissive opponent who exhibited non-verbal displays of appeasement (Ginsburg, 1977) such as body diminution. Ginsburg and Miller (1980) found that a total of 14 children acted as successful aid givers for 43 different children during 61 recorded episodes of dyadic fights that were recorded over a 21 week period. Thus, a small number of children provided aid on several occassions and a large number of children received aid one or more occassion. Furthermore,

> ...aid givers maintained positions of control over their respective playgroups. They seemed to hold positions at the upper level of their play hierarchy (Ginsburg & Miller, 1980, p.

Two further indices of dominance used (ratings of naive judges and degree of visual regard by other members of the playgroup) indicated that the interventionist children were the socially dominant ones.

Moreover, several recent studies have provided evidence which suggests that once a social hierarchy has been established by children, it remains consistent for long periods of time. Ginsburg and Miller (1980) for example, noted that boys at the low end of the male school playgroups kept their position for an entire academic year and did not show signs of upward mobility. An even more striking observation of this phenomenon was provided by Weisfeld (1978). In his longitudinal study, Weisfeld (1978) observed the nature of a peer group status hierarchy established by males in the first grade over an eight year period. When these boys were tested in the second, fifth and ninth grades, it was found that the high ranking six year old boys were still at or near the top at the age of fourteen. Likewise, low ranking individuals in grade one were also low ranking individuals in junior high school.

Taken on prima facie basis, the foregoing evidence seems unrelated. However, the various works all provide material which supports the notion that there are two broad categories of behavioral styles. Whether called "reactive expressive [illegible] inhibiting", passive [illegible] approach [illegible]

behavioral styles. The first category of mode of orientation includes those behaviors wherein an individual actively transforms or attempts to transform the external environment by intervening in events occurring around him. In the following pages, the term "transformational interventionist" will be used to refer to this style or orientation. The second style is the transformational nonintervention orientation wherein individuals do not actively engage in changing noxious environmental stimuli; rather they acquiesce to them or withdraw from them.

A Freudian (1900, 1910a, 1910b, 1926) or psychoanalytic analysis makes the differences between these two styles of behavior stand out. The nonintervention[illegible] makes more use of defense mechanisms to transform, repress, distort, deny or otherwise alter the objective reality intrapsychically so that events and conditions can be readily assimilated. Accommodation within both intellective and affective structures can be made so that reality with its often troublesome conditions can be made more palatable. Conversely, the transformational interventionist appears less ready to make extensive and continued use of elaborate defense mechanisms, but rather he views reality as subject to material alteration through overt actions he actively engages in attempts to alter external conditions which are noxious and bothersome. Both orientations then, alter the objective [illegible] intrapsychically; the

interventionist attempts to change the actual environment. This is not to say of course, that people make exclusive use of only one mode of orientation; both modes can be employed and which mode is used, may greatly be affected by situational qualities. The predominance or frequency of one or the other orientation with which persons relate themselves to situations of all sorts allows us the opportunity to discover the extent to which this typology has use value.

The noninterventionist's general style of adapting to the environment by acquiescing to, or withdrawing from, noxious conditions may, in part, be due to phenomena like those entailed in learned helplessness. Seligman (1975) has suggested that because of an inability to control certain events people learn to behave helplessly in the face of these events and hence make no attempts to change them. When events are noncontingent upon attempts to manipulate aversive stimulation, helplessness is learned. This rather simple hypothesis which predicted that helplessness would be learned when outcomes are independent of responses, worked rather well in explaining the observations and results achieved with infrahumans, but has had to undergo some reformulations when applied to humans. The initial hypothesis does not distinguish between cases in which outcomes are uncontrollable for all people and cases for which outcomes are uncontrollable (or perceived as such) by only some people. In the recent reformulations based on attribution theory (Abram-

Seligman and Teasdale (1978) have distinguished between universal helplessness and personal helplessness. They have also distinguished between general and specific helplessness and chronic and acute helplessness. According to the attribution model, when people perceive noncontingency, they attribute their helplessness to a cause. This cause can be perceived as stable or unstable, global or specific, and internal or external. Thus, the attribution chosen will influence whether expectations of future helplessness will be chronic or acute and broad or narrow (Abramson, Seligman & Teasdale, 1978). For example, a student failing a statistics examination for which he has spent many hours in preparation, may attribute his failure to his lack of intelligence (internal-stable-personal-global) and may therefore, develop chronic helplessness with respect to the study of statistics and indeed, any situations requiring his use of mathematics. Another student under the same conditions may attribute his failure to the unfairness of the examination (external-unstable-universal-specific) and therefore, will not likely develop helplessness in the face of further study of symbolic material.

Miller and Norman (1979) have similarly provided a reformulation of the learned helplessness model in terms of attribution theory. They have introduced individual differences, attribution, expectancy and situational cues into the helplessness paradigm. Although the helplessness model has

become considerably more complex as a result of these reformulations, its significance depends on the demonstration of the cross-situational generalization of helplessness when attributions of learned helplessness outcomes are made to relatively stable causes. Despite Hiroto and Seligman's (1975) suggestion that learned helplesness generalizes from one situation to similar settings, there is as yet, no convincing evidence to support this hypothesis (Miller & Norman, 1979). However, it should be noted that as of the present, very little research has been carried out to test this hypothesis. At the same time, no one has yet produced evidence to falsify the hypothesis. Accordingly, judgments as to its significance, must await further research. Nevertheless, for present purposes, one could theorize that those who tend to manifest a noninterventionist adaptive mode, may be those who have developed chronic learned helplessness as they have attributed past noncontingency to stable personal causes.

Some recent work of judgment of contingencies done within the learned helplessness paradigm tends to support the psychoanalytic interpertation of the interventionist-noninterventionist adaptive modes. Alloy and Abramson (1979) for example, conducted a series of experiments with depressed and nondepressed subjects and found that depressed subjects' judgments of contingency were "surprisingly accurate in all four experiments", while nondepressed subjects "overestimated the degree of contingency between their responses and

outcomes" (p. 441). They concluded that their nondepressed college student subjects tended to succumb to various "cognitive illusions". A number of other recent studies have documented nondepressive illusions in areas other than judgment of contingency. Nelson and Craighead (1977) for example, found that depressed college students accurately recalled the frequency of negative feedback on a laboratory task whereas nondepressed students underestimated the frequency of negative feedback. Similarly, Lewinson, Mischel, Chaplin and Barton (1980) found that depressed psychiatric patients accurately assessed their social competence; nondepressed patients and normal control subjects perceived themselves more positively than other people saw them. The general conclusion that Alloy and Abramson (1979) have drawn from their studies is that, "nondepressed people succumb to cognitive illusions that enable them to see both themselves and their environment with a rosy glow" (p. 480).

While these studies are limited insofar as they deal specifically with comparisons between depressed and nondepressed subjects, this evidence has important implications for the aforementioned psychoanalytic interpertation of the interventionist-noninterventionist dimension. One could conjecture that the noninterventionist makes effective use of defense mechanisms to generate a series of "cognitive illusions" such that they construct an environment "with a rosy glow", intrapsychically; others who

more correctly perceive reality, may become depressed. However, still others do not succumb to "cognitive illusions" nor do they become depressed. Rather, they take active steps in attempts to alter those conditions which lead to the noncontingency between their responses and outcomes. These then, are the prototypical interventionists.

Probably the most clear-cut example of interventionist-noninterventionist personality types is in the area of political activism. It is well known that some individuals readily participate and actively engage themselves in attempts to change, via political activism, the social milieux in which they live. The vast majority of others simply withdraw from, or acquiesce to and become passive with respect to certain existing conditions which may be unpleasant. They make no attempt to alter these conditions. In light of this, one may very well ask who the active minority are and what factors characterize them.

Travis (1975), in a detailed analysis, concluded that the interventionists may best be characterized as being generally "wealthier, better educated, politically and culturally critical, articulate, expressive and deviant in a progressive direction" (p. 245) than are the noninterventionists. Generally, the active elite in political matters are those who possess socioeconomic advantages which confer power on their possessors. According to the thesis developed here, we should expect the wealthy and hence powerful people to exhibit

different behavioral styles than do their less powerful counterparts. The wealthy do not learn helplessness. Quite the contrary because,

> The possession of power enables one to produce effects. People who possess such power might be expected to acquire the habit of using it (Travis, 1975, p. 259).

Since changes resulting from the exercise of power are apparently reinforcing (Mahoney & Thorensen, 1974), it is expected that the probability of a subsequent instrumental behavior will be increased after a reinforced action. The less wealthy (and hence less powerful) people in society are often ineffectual in gaining changes in conditions that are unpalatable and hence do not acquire the habit of behaving in an instrumental way. The wealthy and powerful then, are more likely to employ an interventionist mode of orientation while their less privileged counterparts are more likely to be noninterventionists.

Gaining changes in evironmental conditions is, somewhat, contingent upon behavioral persistence. That is, the more persistent one is in attempting to alter evironmental conditions, the greater the likelihood that one will produce changes. The interventionist who is in the habit of producing effects, would, one could conjecture, exhibit more behavioral persistence than a person who does not intervene. This behavioral persistence might be considered in relation to achievement motivation theory.

McClelland, Atkinson and co-workers have developed a theory of achievement motivation wherein they posit the existence of an achievement motive or the "need" for achievement (Atkinson, 1964). In this conception; it is assumed that in an achievement situation -- i.e., a situation in which a person not only sees himself as responsible for a somewhat uncertain outcome but knows that the outcome for which he is responsible will be evaluated against a standard of excellence -- two conflicting predispositions will be energized: a motive to avoid failure and a motive to achieve success. These motives are assumed to be part of the person's enduring personal orientation and that the relative strength of these two motives will vary from person to person. The empirical data that has accumulated over the years based on this theory, has been largely equivocal and the theory of achievement motivation has fallen from its former position of high respectability. The major criticisms that have been levelled at achievement motivation research may be summarized as follows: (see Weiner, 1972; Maehr & Sjogren, 1971; also Anderson & Travis, 1981)

(1) Poor instrumentation for measuring the variables in the proposed models is relied upon.

(2) Cross-cultural generalizability of the "achievement motives" is lacking.

(3) The self-competitive and socially-competitive variables are confounded. That is, are the behaviors of people

who like to win (over others) being described, or simply, as is implied in the theory, are the behaviors of people who like to do well in terms of either external or internal standards being described?

(4) Predictive power is especially poor with respect to women.

(5) There is no apparent practical applicability for the material.

In short, the theoretical propositions which are logically implicated by the assumption of a "need" for achievement have not gained convincing empirical support. The whole notion of the existence of a "success motive" and a "failure motive" has beem thrown into serious doubt.

However, de Charms (1968) developed a theory of motivation wherein he suggested that the manipulation of the environment alone may determine "achievement motivation". Thus, the proffered "need" for achievement is actually regarded as a learned phenomenon rather than a basic or universal motive. Those who are impotent in controlling their environment are made to feel like "pawns" and they will therefore be less achievement oriented than those whose behaviors are instrumental, i.e., are reinforced by the completion of tasks.

In any case, whether or not striving for achievement is the manifestation of a "need" or is simply a learned predisposition, we note that certain people are high in "need

achievement" while others show little desire to gain changes in their environment or otherwise attempt to achieve standards of excellence. Cast in terms of the proposed typology, one would expect that the interventionist, who would be in the habit of having his instrumental behavior reinforced by the effects he produces, would become high in need achievment and consequently see tasks through to their completion. Now, it has been amply demonstrated that those who are high in need achievement -- success oriented as opposed to failure threatened in the jargon of achievement motivation theory -- persist longer at tasks which are difficult and require effort and perseverance (Feather, 1962; Halisch & Heckhausen, 1977; Revelles & Michaels, 1976; Weiner, 1974). Accordingly, the interventionist personality may be characterized by high behavioral persistence while the noninterventionist may show low perseverating behavior.

It is expected that those adults who are active, assertive, expressive and interventionist will influence their offspring to develop similar characteristics while their more passive, acquiescing and withdrawing counterparts are also expected to pass on these characteristics to their children (e.g., through modeling by themselves and their friends and neighbours). This proposition is derived from social learning principles as enunciated by Bandura (1969, 1971, 1977) and by Bandura and Walters (1963). These researchers, together with their associates, have amassed impressive empirical evidence

which demonstrates that behavior can be modified through observational learning or modelling as well as by classical conditioning, operant conditioning, extinction procedures and discrimination training. Observational learning, otherwise labelled "imitation" and "identification" in other realms of psychology, is that process whereby one person reproduces the actions, attitudes, or emotional responses exhibited by present or depicted persons and symbolic models. A model that is especially visible, attractive, expressive, assertive, successful, prestigious, powerful, the recipient of adulation as well as other social reinforcers, is more likely to be emulated by an observer than would be a model who lacks these characteristics. Persons who are dependent, attentive, relatively ineffectual, emotionally labile persons who have been reinforced in the past for imitating the less introverted models described above (Bandura, 1977, p. 22-29; Travis, 1975) are particularly subject to modeling influences. Thus, an observer who is dependent and who is relatively ineffectual tends to imitate models who possess rewarding power and who are observed to be more competent and successful in procuring reinforcers that the observer is ineffectual in procuring for himself.

Such a relationship -- powerful model and an ineffectual observer -- is typified by the parent-child relationship. The child, vis a vis the parent, is dependent, and relatively ineffectual and hence likely to produce those behaviors of the

parents which are instrumental (or perceived as such). Hence the children of the wealthy, powerful, assertive and coercive parents who are the "shakers" and "movers" of the world, are likely to develop similar behavioral characteristics. Accordingly, we observe that the political activists in the late 1950's and the early 1960's were comprised of tiny elites who were sons and daughters of parents that were generally wealthy, highly educated, and politically and culturally critical (Travis, 1975, p. 245). These qualities of the early activists were inherited (following social learning principles) from their parents who were regarded as being highly nurturant. And the less powerful and less socially assertive majority appear to reproduce themselves by passing on their passive and intrapsychic defensive styles to their offspring.

That children of economically advantaged circumstances are able to develop "personalities" unique to the wealthy due to their privileged circumstances, is supported by Coles' (1977, 1978) extensive studies of affluent families. Coles (1977) insists that,

> ...wealth does govern the minds of privileged children, gives them a peculiar kind of identity which they never lose...There is, I think, a message that virtually all quite well-off American families transmit to their children -- an emotional expression of those familiar, classbound prerogatives, money and power (p. 54).

Coles called this emotional expression a sense of "entitlement" (1977, p. 55). When these children take their

power and advantaged circumstances for granted, their social surroundings are assimilated and transformed into a psychological phenomenon which incorporates and represents the character of their relations with their world (Travis, 1979, p. 31).

In support of Coles' contentions, Weinstock's (1967) empirical investigation can be cited. Weinstock showed that coping styles and adaptive techniques of children are closely related to the family circumstances. Furthermore, these early acquired "styles" may become relatively fixed aspects of the adult character structure. Passivity in the father in the early family environment results in the heavy reliance on denial and repression as coping styles of the children. An expressive coping style of the father is likewise transmitted to the children.

Such evidence then suggests that the development of behavioral styles are influenced by family circumstances and the behavioral ecology within and surrounding them.

General Conclusions and Summary

From the foregoing discussion, several conclusions may be drawn:

(1) A more adequate understanding of human behavior may be substantially advanced by further studying person environment transactions.

(2) Actual behavior is a function of a continuous process

of multidirectional interaction between persons and the situations within which they act and other people may be found (Bandura, 1978; 1979).

(3) Evidence from various sources indicates that two poles on one personality dimension can be recognized at the most general level of analysis: (a) the transformational interventionist type, and (b) the transformational noninterventionist.

(4) In the realm of political activity, the transformational interventionist style of behavior is usually associated with economic advantage, higher education and above average intelligence.

(5) Behavioral styles can be and are developed and strengthened through: (a) observational learning and (b) instrumental learning processes.

Research in other areas of inquiry is also helpful for providing evidence as to which characteristics are associated with the poles of the interventionist noninterventionist dimension. As has already been mentioned, power derived from wealth is such a characteristic. In American society, intelligence is also associated with wealth. That is, it is widely recognized that intelligence as it is conventionally conceived, is strongly correlated with socioeconomic status (e.g., Henderson, 1976). Although it is not altogether clear why people from privileged circumstances generally appear to be more intelligent than others who are not so privileged, it

is sufficient to note that there is a strong relationship between socioeconomic status and intelligence.

Related to both intelligence and socioeconomic status is achievement. A well documented finding indicates that among high achievers in educational settings, students who are from homes with economic privilege are regularly over-represented (e.g., Jencks, 1972; Karier, 1973). They also seem to produce higher scores on intelligence tests than do their less economically privileged counterparts. And of course, related to achievement is behavioral persistence. It is by now well understood that the habit or disposition of persisting in the face of adversity or difficulty is a characteristic shared by those who excel in scholarship, artistic production, and some other realms of endeavour (James, 1890; Nicholls, 1972; Goleman 1980). The interventionist one might guess, is he or she who can persist at a task for long periods of time and pursue it to its completion with gusto and endurance, and so is more likely to achieve standards of excellence than is the nonInterventionist who gives up more quickly in the face of difficulty.

Finally, it is expected that there should be sex differences in the interventionist-noninterventionist personality dimension. Generally, males tend to be more active and domineering than females in controlling events which affect them (Bem, 1974; Shields, 1976). Breer (1960) (as cited in Argyle & Little, 1972, p. 52) found that variables of

importance in predicting who would dominate whom in a social situation are: age, sex, and social class. Thus an older, higher class male usually dominates a younger, lower class female.

From the foregoing broad formulations, a series of more specific predictions can be made:

(1) Personality can be found to vary along a dimension which can be assessed by observing distinct patterns of behavior. The dimension is described by transformational interventionist behavior on the one hand and transformational nonintervention ist behavior on the other.

(2) Interventionists will be more likely to actively engage in overt attempts to control the parameters of situations in which they find themselves than will the nonintervention ist who will be more passive and withdrawing.

(3) The interventionist personality is associated with higher socioeconomic status.

(4) The interventionist personality is associated with above average intelligence.

(5) The interventionist personality is associated with above average achievement.

(6) Sex differences exist in relation to this personality dimension with males being more interventionist than females (particularly upper class males).

CHAPTER IV

RESEARCH DESIGN AND METHOD

Throughout the foregoing chapters, several interrelated themes and issues which, it was argued, have caused conventional personality psychology to have reached its limits as science (Meehl, 1978; Koch, 1981), were outlined. Though inextricably interwoven, three basic questions or issues can be summarized and discussed separately. Before the research design is outlined in this chapter then, a brief synopsis or summary of these three important issues is appropriate.

The Instrumentation Issue

It has been usual to assess personality with the use of projectives or other tests and questionnaires. The usual form of these latter instruments are in the form of "personality inventories", adjective checklists, self-reports and so forth. As we have seen, these assessment procedures have not produced particularly useful sorts of data. Might it not be more productive then, to attempt to assess behavior directly?

A useful alternative approach to the conventional methods of assessment of personality may be the collection of "behavioral census" data in situations of particular interest. Some obvious advantages may be accrued by employing such a strategy. First, inter-observer agreement may be more readily established since distinct behavioral patterns in specific

situations are observed and recorded. Second, this species of research takes behavior per se as its object of study rather than the hypothetical constructs which signify the putative sources of behavior which are presumed to reside in the mysterious internal depths. The advantage of sampling behavior to predict behavior was demonstrated in a study by Alker and Owen (1977). They found that specific past behaviors were far better predictors of future skilled performance than were pencil and paper "trait" measures which only predicted performance on other tests and questionnaires but were unrelated to specific behavior. And third, since assessment is of behavior per se rather than of more remote and abstract phenomena (such as anxiety, honesty, aggression and the like), the connection between theory and observations may be made more readily. In this way, it may be possible to circumvent the measurement and assessment difficulties which have heretofore plagued us. The fundamental suggestion here is that if we are to understand behavior then we must study behavior directly. Reliance on projectives and tests and quetionnaires for indexing basic personality structures and configurations which are assumed to give rise to, and order behavior, has caused the study of personality to become bogged down in a mire of confusion.

One further point should be considered in relation to the instrumentation issue. There may be an advantage in combining direct assessment with an idiographic approach. As Harris

(1981) has suggested, this may yield a more accurate personality profile than the usual strictly nomothetic approach which has dominated research (Lamiell, 1981). Studies employing behavioral assessments of individuals on several occassions (an idiographic approach) have been rare; and the data from the more abundant but methodologically inadequate and conceptually void nomothetic type of studies have tended to support the position of instability of personality. This is not because personality itself is inherently unstable: the extent to which this is so has has not been settled. For these studies have had serious methodological flaws -- they have often employed untested and frequently foolish instrumentation (Block, 1981; Rubin, 1981). A behavioral census approach may remediate this instrumentation problem. For the nature of our understanding of personality will depend, in large part, on the quality of the "raw" observations that are accumulated as well as on how these observations are organized (Fiske, 1978a, 1978b, 1979; Lamiell, 1981).

The combining of an idographic and a nomothetic approach yields what Lamiell (1981) has called an idiothetic approach. This involves an orientation in which the problem of personality description is approached in an idographic manner and in which nomothetic principles are sought with respect to questions of personality development (Lamiell, 1981, p. 276).

Using a behavioral census approach within an idiothetic framework may provide the means whereby a solid data base can

be developed. Thus, this may ultimately provide a basis for more accurate and systematic descriptions of personality and prediction of behavior. Analysis of the behavioral census data across individuals may yield patterns, styles or order which have been hypothesized but which have been extremely elusive when data have been gathered by indirect assessment procedures.

The Consistency Specificity Issue

A related but distinguishable issue from the instrumentation problem, is the so-called consistency-specificity issue. The resolution of this issue remains a central goal and challenge to those who study personality (Epstein, 1980; Feshbach, 1978). Indeed, this issue is so fundamental to the whole notion of personality and its assessment that progress in gaining understanding of personality development and dynamics has been stymied by this perplexing and vexing problem (Mischel, 1977, 1979; Travis & Violato, 1981; Tyler, 1978; Violato, 1978).

As we have seen in the previous chapters, indices of cross-situational consistency of behavior derived by studies of the usual sort involving the indirect assessment of personality constructs, rarely exceed ±.30 correlations (Mischel, 1968). Indeed, correlations between .20 and .30 are found so consistently when virtually any personality dimension inferred from a questionnaire is related to almost any

conceivable criterion sampled in a different medium (i.e., not by another questionnaire), that Mischel (1968) was moved to dub such correlations as the "personality coefficient" (p. 78).

Those studies examined by Mischel (1968, 1973a, 1973b) as well as the more recent studies by Endler and his associates (e.g., Endler, 1973, 1975, 1977; Endler & Magnusson, 1976a, 1976b; Endler & Magnusson 1977; Magnusson & Endler, 1977) have been interpreted by some (Endler, 1975; Mischel, 1973a) to mean that only approximately 10% of variability in individual behavior is due to personality factors. This would indicate that behavior is highly situation specific and personality unstable both transsituationally and transtemporally. Nevertheless, while few would maintain that there are absolutely no consistencies in the behavior of individuals, the question remains: do such consistencies as exist account for more than trivial portions of the relevant variance in behavior (Kenrick & Stringfield, 1980)?

As was argued in the previous chapters, this apparent situational specificity of behavior may be an artifactual result of the indirect assessment techniques within a nomothetic framework that has been employed almost exclusively in previous research. Accordingly, if behavior is assessed directly, a more reliable and qualitatively better estimate of the transsituational and transtemporal stability of behavior may be provided. This then; might provide a more adequate

basis for conceptualizing personality dimensions.

An additional factor that may have led to the low correlations between trait scores and "objective events" (i.e., behavior; see Epstein, 1980), may be a result of inadequate sampling of the objective events and therefore could be attributed to the "noise" of measurement. Epstein (1980) has suggested that stability in behavior can be demonstrated over a wide range of variables so long as the behavior in question is averaged over a sufficient number of occurrences. Moreover, Epstein (1979b) was able to show that as sampling of behaviors increase (over days), reliability coefficients increased as well. Unfortunately, the behaviors chosen for study were relatively trivial (number of erasures and omissions made in filling out an answer sheet, number of minutes late to class, number of times a Number 2 pencil was forgotten) and can hardly form a reasonable basis from which one can generalize to socially significant behavior. Nevertheless, the findings are consistent with the suggestions; they are also consistent within the framework of classical test theory wherein it is postulated that reliability and stability increase as the number of test items increase (Stanley & Hopkins, 1972). The increase in reliability conforms to predictions according to the Spearman-Brown prophecy formula (Magnusson, 1967). This principle -- that single or few items have lower predictive power than the mean of many items -- applies to laboratory and other behavior

as well as responses on paper-and-pencil tests (Epstein, 1977, 1979b, 1980; Green, 1978). As the range and number of situations that are sampled (presumably from a universe of situations) increases, the behavior of interest which is directly assessed will increse in reliability. In other words, higher behavioral stability will be found when the situations in which the behavior of interest occurs, are more adequately sampled.

A final problem which has added to the confusion about the issue of consistency is that some people may demonstrate more stability in behavior than others (who might be more subject to situational controls) (Campus, 1974; LamieIl, 1981). There has been a general failure to recognize this point and usually no attempts are made to distinguish samples on such important variables as socioeconomic class, sex, intelligence and so forth. Such a failure has probably greatly contributed to the confusion about the stability of behavior. For example, social-historical analysis of the political economy and behavior within it suggests that personality orgnization may co-vary with socio-economic conditions (Coles, 1977; Travis & Violato, 1981). This suggestion is consistent with reports emanating from such diverse sources as the Frankfurt School (e.g., Fromm, 1962) and the social learning tradition (e.g., Bandura, 1977; Bandura & Walters, 1963). Feshbach (1978) has similarly proposed that the consistency and organization of personality varies as a function of

socioenvironmental factors. Hence, within-culture variations such as position in an uneven distribution of power (i.e., class position) may produce not only class differences but individual differences in response consistency as well. Feshbach (1978) suggested that:

> The degree of specificity or generality found in the population as a whole will depend upon the relative proportions of those individuals whose behavior tends to be situation-specific and those whose behavior reflects more generalized dispositional traits. This mix will in turn depend upon variations in features of the sociocultural environment that affect the integration and organization of behavior (p. 449).

Feshbach (1978) has distinguished at least four relevant sociocultural dimensions that are basic to the question of what conditions foster continuity and organization in behavior and what conditions foster discontuniuty and segmentation: (1) the consistency of values and socialization practices among the various socializing institutions (e.g., family, schools, peer groups, church, media, and so on); (2) the extent to which the culture allows for individual variations; (3) the flexibility versus the rigididty of value and role norms; and (4) the degree of stability versus the transitional nature of these cultural values, role norms, and socializing practices.

Although little research has been done into the question of what and how sociocultural conditions foster organization or segmentation, socioeconomic class may be an important variable to study in research on between-group differences in response consistency. Two other such important variables can

be identified: gender and intelligence. As was suggested throughout the previous chapters, these two variables may also underlie between-group differences in behavioral stability.

However, previous researchers have, for the most part, failed to distinguish between-group differences in the generality or specificity of behavior. When analyses on the transsituational stability of behavior have been done on aggregates, invariably, consistency has been estimated to be very low. These findings have given rise to Mischel's (1968) personality coefficient. Despite this state of affairs, it is very likely that significant differences exist between people in response consistency. This suggestion has been made by others (e.g., Campus, 1974; Feshbach, 1978; Lamiell, 1981). Three important variables that may covary with behavioral stability are socioeconomic class, gender and intelligence (Travis & Violato, 1981). Moreover, it is likely that when consistency is analyzed for a sample that are mixed on these three varialbles, the degree of consistency found will approximate Mischel's personality coefficient though the magnitude will be higher if direct assessments are done. In any case, more behavioral census data of the kind described above is required to produce more accurate estimates of the transsituational stability of behavior, both in the population in general and in specific subgroups as well.

Personality As Behavioral Style

Should behavioral census data provide evidence to indicate that behavior (for some people) is not as situation specific as the indirect assessment data suggest, then there is a good base upon which to suppose that "personality" can be cast in terms of behavioral styles. Based on the kind of data that suggests that behavior is highly situation specific, it would make little sense to attempt to assess personality in terms of behavioral style since no such styles would be measureable. But should directly assessed behavior indicate a fairly high degree of transsituational consistency for some groups, then there might be a reasonable basis for conceiving of style dimensions (e.g., consistency of qualitites common to diverse behavior -- as in the interventionist tendency discussed above -- wherein the actor intervenes to alter the sources of his difficulty).

In this conceptualization, the theoretical point of departure from trait psychology is small. The focus here is on behavioral style, or behavioral trait, rather than on the more abstract, hypothetical and vague notions of traits such as anxiety, honesty, shyness and the like, which must, by definition, be measured indirectly. Within this framework, the basic unit to be studied in personality is the behavioral unit or behavioral trait which can be assessed directly. Styles of behavior then, are used as the units of personality description and assessment. The behavior which is to be

studied is significant in its own right; it itself is socially significant rather than being used as a "sign" or "test" of some underlying trait or construct. Behavioral styles, since they can be observed and measured directly, may be more readily tied to theoretical formulations than has been the case in the orthodox conceptions of personality.

More specifically, the propositions in Chapter III about the existence of two behavioral styles at the most general level of analysis -- i.e., transformational interventionist and transformational noninterventionist -- may be submitted to empirical tests. The observation, recording and classification of behavioral patterns within this framework may eventually lead to the extrapolation of systematic patterns and empirical laws. In this way, a solid data base upon which more accurate predictions can be made, might be generated.

The importance of providing such a data base is obvious and requires little discussion. Not only may a more complete and precise understanding of human behavior in general be gained, but also some light may be shed on the etiology of heretofore puzzling maladaptive behavioral patterns which is currently only very poorly understood (King, 1978). And despite the development of complex models of behavioral systems involving "multi-directional feedback" (e.g., Bandura, 1977; Endler, 1977), "reciprocal determinism" (Bandura, 1978, 1979), interactive feedback-loops (e.g., Howard, 1979), and so forth, very little progress has been made in understanding the

fundamental units in the B=f(P,S) function: the person and the situation. Accordingly, psychologists, educators and educational researchers are left to attempt interventions in human affairs by manipulating situational factors without a clear understanding of how these situational factors interact with and influence different persons. Before these complex models of behavioral systems become useful, it is crucial that we acquire a clearer understanding of the fundamental person (P) unit in the classical B=f(P,S) function (or any of its comtemporary transformations whether multi-directional, reciprocal or interactive). This is necessary if we are to gain a better understanding of behavior and its development in educational (and other) settings. The proposed strategy of direct assessments of behavioral styles may provide one direction to the better understanding of the crucial person (P) factor.

The contrasting styles of adapting to taxing situations (transformational interventionist and transformational noninterventionist) which were discussed above and more thoroughly in Chapter III, appear to be related to or entail behavioral persistence. As we saw in Chapter III, this proposition is, in part, derived from the work of Feather (1962) and Weiner (1972,1974). These researchers have shown that subjects who are "success oriented" show consistently higher behavioral persistence on tasks which they have either undertaken on their own or to which they have been assigned.

than do "failure oriented" subjects (Weiner, 1972, p. 241-247). Moreover, failure threatened subjects are more likely to prefer relatively simple tasks when given a choice of tasks that vary in degree of difficulty than do success oriented subjects who tend to prefer relatively more complex and difficult tasks (Weiner, 1972, 1974).

As we have seen, the interventionist (some of whom may be success oriented) have, apparently, learned (both through exposure to successful models and because of the instrumental effects of some of their past behavior) to undertake relatively difficult and challenging tasks on which, they show high behavioral persistence. Conversely, the nonintervention ist may not have had sustained exposure to successful models (who have high affective valence -- see Bandura, 1977) and may have experienced generally negative instrumental effects consequent to much of their past behavior. Accordingly, they may have adopted a preference for simple and relatively nonchallenging tasks which do not require high levels of persistence.

Behavioral persistence is also of interest in its own right because it is important in determining performance of difficult tasks (Cartledge & Milburn, 1978; Gilmor, 1978; Maehr & Sjogren, 1971, p. 147). For it is by now well understood that the habit or disposition of persisting in the face of difficulty or adversity is a characteristic shared by those who excell in scholarship, artistic production, and

other realms of endeavour (James, 1890; Nicholls, 1972; Goleman, 1980). Accordingly, since behavioral persistence is of interest in its own right; and since it appears to be related to, or entailed in, the contrasting orientations to the environment that were discussed above, this habit or "behavioral trait" was chosen for investigation in attempts to explore further the consistency-specificity issue by direct behavioral assessments.

For the purpose of the present study then, the personality dimension that was conceived of as being manifest in the contrasting styles of adapting to taxing situations, was behavioral persistence. It was suggested in Chapter III and above, that two important variables that seem to be associated with the interventionist-noninterventionist personality are achievement and abilities. Therefore, it was expected in the present study, that achievement and abilities should be positively correlated with behavioral persistence. That is, those subjects who show high behavioral persistence at a difficult task which is represented to them as a test, are expected to be those who are above mean levels of intelligence and achievement in school related work. Five basic questions then, were addressed in the present study:
(1) What kind of data can be produced by direct assessments of behavior in relation to the consistency-specificity issue?
(2) On such important variables as socioeconomic class, sex, and intelligence, how do these groups differ in their degree

of transsituational consistency of behavior?

(3) Do separate factors underlie behavioral persistence that is manifested in response to imposed tasks and events which are not imposed?

(4) What is the relationship between interventionist and noninterventionist behavior (as manifested by behavioral persistence and other indicators) and achievement?

(5) What is the relationship between interventionist-noninterventionist behavior (as manifested by behavioral persistence and other indicators) and abilities (e.g., IQ)?

Questions of the foregoing nature were addressed by a study of the consistency with which a sample of pupils (described below) exhibited behavioral persistence in different situations. Specifically, an exploration of the extent to which these children exhibited consistent patterns of behavioral persistence in six different situations (4 of which were "experimental" or contrived and 2 of which were "naturalistic" -- see Tunnel (1977); also Bronfenbrenner (1976, 1979)) was assumed to be a reasonable way of exploring the foregoing questions. For present purposes, six situations sampled from a theoretical universe of situations was thought to be an adequate sample of situations. It was assumed that the extent of intrasubject consistency of behavioral persistence across six situations would be indicated by the extent to which intersubject rank order of behavioral persistence in each of these same six situations was

maintained.

Based on the foregoing discussion and the discussion throughout the preceeding chapters, the following specific hypotheses were proposed.

Hypotheses

(1) Direct assessment of behavioral persistence across varied situations (described below) will produce estimates of stability as in stability coefficients (Cronbach's alpha) which exceed the typical ±.30 coefficients produced by the usual indirect assessment techniques.

(2) Consistency of behavioral persistence across varied situations will differ for males and females.

(3) Consistency of behavioral persistence across varied situations will differ for different socioeconomic class strata.

(4) Consistency of behavioral persistence across varied situations will differ for different IQ levels.

(5) Achievement as measured by standardized achievement tests (i.e., The Canadian Test of Basic Skills) will be positively correlated with behavioral persistence in a testing situation.

(6) Abilities (i.e., IQ) will be positively correlated with behavioral persistence.

Method

Subjects. Sixty-five children (37 males (57%) and 28 females (43%)) enrolled in the third and fourth grades of a public elementary school in Richmond, B.C., were selected as subjects in the present study. The subjects ranged in age from 98 to 122 months with a mean age of 110.2 months and a standard deviation of 6.73. All subjects were observed, and data recorded, in six distinct situations (described in turn below); data for socioeconomic status (ses), achievement and IQ were obtained as well.

Socioeconomic Status. All children were asked (by their teacher) to write a story with the title, "The Work my Mother and Father do". The stories were subsequently analyzed and subjects were classified as belonging to one of four socieconomic strata according to the occupation of the head of the household. The occupation of the father was used for this purpose; when the father was absent or when there was some ambiguity as to who the head of the household was, the subject's teacher was consulted and the subjects questioned. When the head of the household was established, all subjects were classified as belonging to one of four ses classifications: (1) entrepreneurs (e.g., independent businessmen who were self-employed). (2) professional managerial (e.g., lawyers, physicians, teachers,

executives, etc.); (3) skilled labour (e.g., licensed workers such as plumbers, electricians, etc.); and (4) non-skilled labour (e.g., clerks, labourers, etc.).

All classifications were done independently by two raters and the results were compared. There was 100% agreement on the ses level of each subject. The number and percentage of subjects in each ses level were as follows: (1) enterpreneurs = 8 (12%); (2) professional/managerial = 17 (26%); (3) skilled labour = 16 (25%); and (4) non-skilled labour = 24 (37%).

IQ. Intelligence quotients of the present subjects were derived by administering Form 2 of the Quick Test (Ammons & Ammons, 1962). The Quick Test (QT), a verbal-perceptual measure of intelligence, consists of three forms which can be used individually or in composite to estimate the test-taker's IQ. The QT offers several advantages as a test of IQ: (1) it takes very little time to test individuals - usually no more than 10 minutes is required (Dizzonne & Davis, 1973); (2) it can be used for a variety of non-normal populations since test-taker's are only required to hear, see and point (Maloney, Steger & Ward, 1973); and (3) it can be used effectively with distractable young children because of its short duration (Gendreau, Roach & Gendreau, 1973). The Quick Test is both a reliable and valid measure of adult intelligence (Cull & Colvin, 1970; Davis & Dizzonne, 1970) as well as children's intelligence (Houston & Otto, 1968;

Nicholson, 1977). A variety of studies have demonstrated that the QT can have test-retest and parallel form reliability of up to .96 and correlates highly with the WAIS, WISC, WISCR and other measures of intelligence (Ammons & Ammons, 1979).

Because of its various advantages, the QT was thought to be adequate for present purposes. Accordingly, all subjects took Form 2 of the Quick Test since this form has the highest test-retest reliability of the three forms for normal children in the age range of the present subjects (Nicholson, 1977). Hence, IQ scores were derived for all subjects.

Achievement. Measures of academic achievement were procured for all subjects by administering the Canadian Tests of Basic Skills (CTBS) according to the standardized procedures for administering this test (King, 1971). Four sub-tests of the whole battery were administered -- two in the verbal domain (Vocabulary and Reading Comprehension) and the other two in arithmetic-mathematics (Math Concepts and Math Problems). The four sub-tests, Vocabulary, Reading, Math Concepts and Math Problems, will be abbreviated throughout this document as Voc, Read, MC, and MP respectively. From these tests, four separate achievement scores were derived as well as a composite score. The composite score (designated Ach) was computed by taking the mean of the four sub-tests (see King, 1971).

Procedures

All subjects encoutered six situations, four "contrived" and two "naturalistic", wherein aspects of their behavior was recorded. Two researchers (the present author and an assistant) collected all the data and executed the procedures. Both researchers were adult caucasian males. In the following text, the author is designated "experimenter A" and the assistant, "experimenter B".

Contrived Situations

Situation One: Pencil Maze. In this situation, all participants encountered the same pencil and paper maze problem (Appendix A) in a group context (their regular class). The children were instructed (by experimenter A) to trace a line begining at a point indicated by the sign "start" and continuing through the appropriate channels to a point indicated by the sign "end". This maze was found by previous studies (Travis & Violato, 1981) and pilot work to be too difficult for the capabilities of children of this age range. This assumption was supported by the fact that no child successfully completed the maze. The following instructions were given to all pupils:

> Here is a puzzle. I would like you to try and solve it. The puzzle you have is like this one (indicating a large version on a similar maze which was affixed to the front chalkboard). You can start here (indicating the start) and follow along the paths where you will find the treasure. These (indicating unbroken lines) are fences and these (indicating breaks in the lines) are gates. You can go through a gate but not through a fence. Can I go here (indicating a solid line)? No. Can I go here

> (indicating a break in the line)? Yes. Now watch carefully while I find the treasure in this puzzle. (Pause for demonstration). I want you to find the treasure on your maze. When you have found the treasure on the first maze or when you have tried your best to find the treasure, turn the page over and try to find the treasure on the second maze. Now you may begin.

Time working on the first maze, operationally defined as beginning with the "begin" signal and terminating when the page was turned over (a different maze was printed on the reverse side of the page) was taken as an index of behavioral persistence. Both experimenters A and B, each with a stopwatch and a seating plan of the classroom, recorded the times. Each observed half of the group.

Situation Two: Ring Puzzle. Each child was brought into a private room (with only experimenter B present) and was there asked to solve a wire puzzle. The solution of the puzzle occurred when two metal rings were taken apart. This task was also judged to be difficult beyond the pupils' capabilities. This assumption was again supported by the fact that no child successfully solved the puzzle. The following instructions were given to all children.

> Do you remember what we did with these bottles (Palmar Sweat Measure (Strahan, Todd & Inglis, 1974) that had been taken from each child on a previous occassion)? Good. Today we will do it again. But first, I would like you to try and solve this ring puzzle. Now watch carefully as I take them apart. See how easy it is? Now watch, I will put them together again. Once more -- here is how they come apart. See, I did not force them or bend them. You must not force them or bend them because that is the wrong way to do it. They come apart easily if you do it right. Remember, no forcing. When you have taken the rings apart or have tried your best to take them

> apart, put them down on the table and we will do some things with the bottles. Now you may begin -- here are the rings.

Time attempting to solve the puzzle was operationally defined as beginning when subjects received the rings and terminating when they put them down on the table. Again, time on-task was the measure of behavioral persistence.

Situation Three: Picture Reproduction. While seated in a private room with experimenter B, each child was asked to reproduce, to the best of his abilities, a printed colour picture. The following instructions were given to each subject:

> Today I would like to show you this picture from a book. I would like you to draw this picture for me. We are studying how well children can copy pictures from books without tracing them. I would like you to draw your picture to look the same as the one in the book. Do your very best to make your picture look as much like this one as possible. Remember, we wish to see how well you can copy this picture. Are there any questions? Here is a sheet of paper and some crayons. Put your name on the paper in this corner (indicating the upper right-hand corner). Whenever you are ready, you may begin. Remember, do your very best. You may begin.

Time on task was operationally defined as beginning when each pupil put the crayon on the paper and terminating when he or she declared completion. Time on task was, as before, taken as the index of behavioral persistence.

Situation Four: Spelling Test. In a private room each child was asked by experimenter A to take a "spelling test". The spelling test consisted of 40 stimulus words recorded on a cassette tape but with 16 words being covered by static noise

that had been taped over the words (Appendix B). Accordingly, 16 words were inaudible. The cassette tape was played on a dictaphone and the stimulus words delivered through headphones. Using a footpedal, the subject could reverse, advance or stop the tape. The child's task was to write and correctly spell as many words as possible. The following instructions were given to each subject:

> Today I would like to show you this machine -- do you know what it is? Yes that's right. Its a kind of tape recorder called a dictaphone. Sometimes I use this machine to have my secretary type letters for me. I record the letter on the tape and using this machine my secretary types the letter. This machine can be controlled by this footpedal. Putting your foot here makes the tape go forward. If you take your foot off the tape stops. When you press here the tape rewinds. This is good for my secretary since she needs two hands to type. If she misses a word or some words, she can stop the tape and rewind it with her foot and she can still keep typing because she still has both hands free. Today I would like you to take a spelling test on this machine. On this cassette tape I have recorded a spelling test which I would like you to take. I wish to know if pupils prefer to take spelling tests like this or in the usual way with the teacher saying the words. On this answer sheet write (or print) each word beside the right number. Remember, this is a spelling test and I want you to do your very best. (At this point the tape was inserted into the machine and each subject was asked to demonstrate, with three example words, his ability to operate the machine. Further instructions in the use of the volume and tone were also given. Each subject practiced and was instructed until the experimenter was satisfied that the subject was able to operate the machine). Now I would like you to put on these headphones and take the spelling test Before you begin, are there any questions? Remember that you should do your best work. You may begin when you are ready

There were no time limits for the children to complete the

as the time on-task. This was taken as an index of behavioral peristence. Attempts at adjusting the equipment (stopping, rewinding, forwarding the tape; adjusting the volume, tone, etc.) were recorded and tallied as "motor interventions". Verbal interventions (any remarks to the experimenter that the tape was defective, that there was noise on the tape, that the test was unfair because of the noise, etc.) were also recorded and tallied. The experimenter replied with a standard response to all verbalizations directed at him: "Do the best that you can".

Naturalistic Situations

Situation Five: Small Group Interaction. This assessment procedure was executed first before any of the other data had been collected or before the experimenters had met the subjects. From the subject pool of 65, 16 groups of 4 subjects per group were formed according to the following procedures: From each ses group (enterpreneurial, professional mangerial, skilled labour, non-skilled labour) subjects were randomly assigned to one of the sixteen groups. Since there were only 8 subjects in the first ses group, only 8 of the 16 groups had subjects from that ses group in it. The remaining 8 groups were formed by assigning 2 subjects from the non skilled labour ses group and 1 from each of the other two. The final group composition was as follows: 8 groups with 1 subject from each ses level; 7 groups with 1 subject each from the

professional/managerial and skilled labour ses groups and two subjects from the non-skilled labour ses group; and 1 group with 2 subjects from the second ses group and 1 subject from each of the third and fourth ses groups. One subject (from the fourth ses group) was not included in the group assessment.

Since the experimenters had not met any of the subjects at this point and were unaware of the group composition, the assessment was a "double-blind" one (Stanley & Campbell, 1963). Accordingly, rater bias was minimized since the experimenters had not formed any impressions about the subjects.

Each group in turn was brought into a vacant classroom in the school which was normally used as a music room. The classroom was devoid of any furniture except for a free standing table at the centre of the room. Various musical instruments and paraphernalia were on the shelves that lined the room. Two observers (experimenters A and B) sat at a table at one corner of the room with an unobstructed view of the room and its contents. The experimenters each had an earphone that connected to a common cassette tape player on which a previously recorded tape was played. A "beep" signalled ten second intervals for a duration of ten minutes as had been recorded on the tape. Both experimenters then, simultaneously listened to the same tape. On data sheets that were designed to be used in conjunction with the tape, the motor and verbal interventions behaviour of the subjects were recorded. Motor

interventions included the following: pushing, pulling, pointing, holding and body pressing. Verbal interventionist behavior included directive verbal utterances (Hayakawa, 1967) such as "come here", "look", "lets play tag", and so forth. Thus both a frequency and duration measure of verbal and motor interventions for each subject was recorded.

To derive an index of inter-rater reliability, a coefficient of observer agreement was computed. This is a coefficient derived by computing the degree of observer agreement when different observers observe the same subjects at the same time (Medley & Mitzel, 1963). Three groups were brought into the room for the purpose of deriving a coefficient of observer agreement. Both observers watched and recorded the frequency and duration of both motor and verbal interventions of the same six subjects (approximately 10% of the subject pool). For all observed behaviors, the total inter-rater agreement for all of the 10 second intervals assessed for a total of 30 minutes was 84.7%. Thus the coefficient of observer agreement was .85 a high degree of inter-rater reliability was therefore achieved.

As each group was brought into the room, experimenter 1 the following instructions to all subjects:

> I will tell you why we asked you to come here today. Do you see these bottles (indicating a box containing small polyethylene bottles filled with water)? We will be doing some things with them. Do you know what's in the bottles? Its distilled water. Do you know what that is? Yes, that's right (or, its water with all the dirt taken out of it). In a few minutes we want you to do some things with these

> bottles. But first Bill and I have to transcribe the tape that's in the recorder. That means that we have to listen to the tape and write down what's on the tape. While we are doing this, we wish you to wait here in this room. You may play or do anything you like except leave the room. You may talk as loud as you like because it won't disturb us. We will listen to the tape with these ear phones. Any questions? Good. Now go and play while we listen to the tape. We will call you when we are ready.

After the expiration of 30 seconds, each experimenter observed and recorded the behavior of 2 subjects for the 10 minute duration. When the recording sequence had lapsed, the subjects were called to the table at the centre of the room and there simultaneously inverted one of the bottles on their palms. When this task was completed, subjects were instructed to return to their classrooms. Thus the data collected in this situation consisted of both frequency and duration of verbal and motor interventionist behavior. Duration measures were taken as persistence scores of interventionist behavior.

Situation Six: In Class On-task. The purpose of this situation was to observe subjects on task under naturalistic classroom situations. Accordingly, each subject was observed in the regular classroom and his her on-task behavior recorded on two separate occassions each of 10 minutes duration. Subjects were observed and recorded only when the teacher had assigned individual seat work to the pupils. These individual tasks, for example, consisted of working alone on arithmetic problems, spelling assignments, reading and so forth. On-task was defined as occurring when subjects appeared to be looking at the materials with which they were working. This was the

operational definition of on-task in a classroom setting as employed by Good and Beckerman (1978). The 10 minute sequence was broken into 5 second intervals and subjects were recorded as either on or off task for each 5 second interval. Off-task was recorded for any interval when subjects broke eye contact with the relevant materials with which they were working.

Since two 10 minute recording periods were done for each subject, a mean on-task time was computed for each subject. Thus, the mean score was taken as an index of behavioral persistence.

As in the previous situation, an index of inter-rater reliability was derived. Again, a coefficient of observer agreement was employed (Medley & Mitzel, 1963). The two experimenters simultaneously observed and recorded the on-task of 8 separate subjects each on one 10 minute occassion. Thus 8 subjects (approxiamtely 12% of the total subject pool) were observed for a total of 80 minutes. For all these observation periods, the total inter-rater agreement was 92.4%. The coefficient of observer agreement, therefore, was .92. Accordingly, high inter-rater agreement was achieved.

Summary Of Situation Characteristics And Types Of Data Collected

The salient features of the six situations are summarized in Table IA. From this it can be seen that the situations varied in many aspects but also shared some similarities. The two naturalistic situations were ones in which the behaviors observed and recorded were not initiated or encouraged by the experimenters. Hence these were naturally occurring behaviors that would have occurred with or without the presence of the observers (Tunnel, 1977; Bronfenbrenner, 1976, 1979). On the other hand, the four contrived situations were ones in which certain behaviors were experimenter initiated and would not have occurred without the presence of the observers.

Part B of Table I summarizes the types of data collected in each situation. As can be seen from this, a persistence score was derived from each situation; this produced six persistence scores for each subject. Moreover, interventionist scores were derived for each subject in situations 4 (spelling test) and 5 (group interaction). Finally, ses data, IQ data, and four measures of achievement were procured for each subject. A composite achievement score was derived from the four separate achievement scores.

Table I

Comparison of Salient Features of the Six Situations and

Types of Data Collected in Each Situation

A Comparison of Salient Features of the Six Situations.

	Contrived Situations				Naturalistic Situations	
	Situation 1	Situation 2	Situation 3	Situation 4	Situation 5	Situation 6
Context	Group	Individual	Individual	Individual	Group	Group
Naturally Occuring or Initiated	Experimenter Initiated	Experimenter Initiated	Experimenter Initiated	Experimenter Initiated	Naturally Occuring	Naturally Occuring
Clear Terminal Solution	Yes	Yes	No	No	No	N/A*
Task Type	Game	Game	Excellence	Test	Play	School Work
Type of Situation	Perceptual/ Motor	Perceptual/ Motor	Perceptual/ Motor	Perceptual/ Verbal	N/A	Perceptual/ Motor/Verbal
Termination	Subject Initiated	Subject Initiated	Subject Initiated	Subject Initiated	Experimenter Initiated	Experimenter Initiated
Experimenter	A & B	A	A	A	A & B	A

Types of Data Collected.

Data and Variable Name	Persistence (secs) MT	Persistence (secs) RT	Persistence (secs) PICT	Persistence (secs) SPT Motor SMI Verbal SVI	Persistence (secs) GPT Motor GMI Verbal GVI	Persistence (secs) INCL

*Not applicable.

CHAPTER V

RESULTS AND DISCUSSION

This final chapter is divided into three major sections: (1) The results of the analysis and an evaluation of the hypotheses; (2) An exploration of the validity of the proposed personality dimension; and (3) A discussion of the significance of the findings. The results and evaluation of hypotheses are presented in four separate sections: (1) A presentation of descriptive statistics; (2) An evaluation of hypothesis 1; (3) An evaluation of hypotheses 2, 3 and 4; and (4) An evaluation of hypotheses 5 and 6.

Results

Descriptive Statistics

The total sample (n=65) was made up of 37 males (57%) and 28 females (43%). The subjects ranged in age from 98-122 months with a mean age of 110.2 months and a standard deviation of 6.73. Eight subjects (12%) were classified as being in the enterpreneurial ses category, 17 subjects (26%) in the professional/managerial category, 16 subjects (25%) in the skilled labour category and 24 subjects (37%) in the non skilled labour category. The mean IQ of the sample was 105.7 with a standard deviation of 12.79 (variance = 163.2). The lowest IQ score was [illegible] and the highest [illegible]

The present sample therefore, resembled a random sample of the general population with regard to characteristics measured by the QT. The mean percentile rank scores (for the Canadian norms of the CTBS) for the achievement sub-tests were as follows: Vocabulary = 63.2 (SD = 27.5); Reading = 59.5 (SD = 28.4); Math Concepts = 48.8 (SD = 27.5); and Math Problems = 55.9 (SD = 25.4). Further descriptive statistics for the persistence, achievement and interventionist variables are summarized in Table II.

There were no sex differences in IQ ($X^2 = 3.64$; df = 2; p = .16) as there were no ses differences in IQ ($X^2 = 3.55$; df = 3; p = .78). There also were no significant differences in gender distribution by ses categories ($X^2 = 3.25$; df = 3; p = .32). However, ses was related to three of the achievement measures: (1) Vocabulary: r = .36; df = 64; p < .05; (2) Reading: r = .30; df = 61; p < .05; and (3) Math Problems: r = .25; df = 64; p < .05. Sex was not related to any achievement measure.

Though none of the above correlations can be considered "robust", there is a modest relationship between ses and achievement though clearly IQ is not related to ses. The three achievement variables (VOC, READ, MP) were positively correlated with ses. This indicates then, that higher ses subjects performed somewhat better than lower ses subjects on these achievement variables. Thus, for the present sample, [illegible] were slight advantages in [illegible]

though IQ was not related to socioeconomic class.

Evaluation of Hypothesis 1

The first hypothesis predicted that direct assessments of behavioral persistence across varied situations would produce estimates of stability coefficients (Cronbach's alpha; henceforth abbreviated, CA) which exceed the typical .30 coefficients produced by the usual indirect assessment techniques.

In order to evaluate this hypothesis, the six situations were theoretically treated as being items from a test (see Epstein, 1980) in the context of classical test theory (Lumsden, 1976; Magnusson, 1967). Thus an estimate of intra-subject stability on persistence across the six situations can be derived by computing an index of "internal consistency" such as Cronbach's alpha (Cronbach, 1951) for subjects across the situations. Cronbach's alpha for the whole sample on behavioral persistence across the six situations was .46. Since CA is a reliability coefficient (Cronbach, 1951) and hence ranges between 0 and 1, the magnitude of the coefficient is equal to the proportion (or percentage) of the variability due to individual differences in the measured variable. A correlation coefficient on the other hand, must be squared (since its range is -1 to +1) in order to estimate the percentage of variability accounted for in one variable by the other. This means that in the present sample, approximately

46% of the variation in behavioral persistence was due to individual differences among subjects (Cartwright, 1975; Cronbach, 1951; Epstein, 1980; Green, 1978). This estimate of the amount of variance attributable to personal qualities in behavior is considerably higher than the estimates of 9-10% produced by the conventional indirect assessments producing correlations of .30. Thus it can be concluded that hypothesis 1 is unequivocally supported. This then, can be taken as evidence to indicate that low estimates of variability of behavior due to individual differences which have been found, may indeed be artifactual results of indirect assessments. For when direct assessments have been made as in the present study, considerably higher estimates are produced (see also, Fiske, 1978a; 1979).

Evaluation of Hypotheses 2, 3 and 4

Hypotheses 2, 3 and 4 all rested on the prediction that transsituational consistency of behavior would vary for different sub groups of the sample. Hypothesis 2 predicted that consistency of behavioral persistence will differ for males and females. Hypothesis 3 predicted that consistency of behavioral persistence will differ across socioeconomic class. Hypothesis 4 predicted that consistency of behavioral persistence will differ for different abilities levels (i.e., IQ)

As in the previous section, Cronbach's alpha was computed

for the data across the six situations. This analysis however, involved computing separate indices for each sub-group of the sample as specified by the relevant hypothesis. Thus to evaluate hypothesis 2, a separate CA was computed for males and females. For males, CA = .60 while for females, CA = .02. The difference in the magnitude of the two stability coefficients is dramatic. Clearly, a much larger percentage of the variation (60%) in behavioral persistence across the six situations for males is due to personal factors while for females a far smaller amount (2%) is due to the same factors. Accordingly, hypothesis 2 is strongly supported by the data. There is indeed a very notable sex difference in response consistency across the six situations.

Hypothesis 3 was evaluated by computing a separate CA for each of the four socioeconomic strata in the present sample. Cronbach's alpha for each ses stratum was as follows: (1) enterpreneurial = .22; (2) professional/managerial = .62; (3) skilled labour = .39; and (4) non-skilled labour = .08. From these data it can be seen that hypothesis 3 is strongly supported. The differences in cross situational stability in the various ses groups are remarkable. The highest stability is in ses group 2 wherein 62% of the variation is due to personal qualities. The lowest stability is found for ses group 4 with only 8% of the variance due to the same factors.

To evaluate hypothesis 4, separate CA's were computed for different IQ groups. The sample was broken down into three IQ

intervals based on the sample mean (rounded to 106) and the standard deviation (rounded to 14). Thus the low IQ group (Low) consisted of those subjects who were more than 1 standard deviation below the mean. This included all subjects with IQ's equal to or less than 91; the mid-range group (Medium) consisted of all subjects within 1 standard deviation of the mean (IQ betwen 92 and 119); and the high IQ group (High) consisted of all subjects with an IQ above 1 standard deviation (greater than or equal to 120). Cronbach's alpha for each IQ group was as follows: (1) Low = .57; (2) Medium = .44; and (3) High = .17.

The differences in the stability coefficients are very notable, particularly when the High group is compared to the other two groups. It is interesting to note that the Medium group had a stability coefficient (.44) very similar to the whole sample (.46) while the other two groups differed considerably. In any case, the theoretical significance of these findings is discussed in a later section. Meanwhile, it is sufficient to note that there is very strong support for hypothesis 4.

Cronbach's alpha for all the various sub-groups of the sample (male-female, ses groups and IQ groups) together with the number of subjects per group, are summarized in Table III. The salient features of the tabular presentation is that it is a dramatic demonstration of the variation in the stability [illegible] as predicted by

hypotheses 2, 3 and 4.

Evaluation of Hypotheses 5 and 6

Hypothesis 5 predicted that achievement, as measured by standardized achievement tests (i.e., The Canadian Tests of Basic Skills), will be positively correlated with behavioral persistence in a testing situation. Hypothesis 6 predicted that abilities (i.e., IQ) will be positively correlated with behavioral persistence.

In order to evaluate these two hypotheses, it was necessary to compute correlations between achievement scores, IQ and persistence scores. Since there were two grade levels that comprised the sample (grades 3 and 4) and levels 9 and 10 of Form 13 of the CTBS were used (King, 1971), it was necessary to standardize achievement scores since raw scores would not be comparable. Hence all subjects achievement scores were transformed, first into percentile rank scores (for the Canadian norms) and then into z scores (Glass & Stanley, 1970, p. 95-108). These z scores were correlated with persistence scores as were IQ scores. The resulting correlation matrix is shown in Table IV.

Since the direction of correlation was predicted for both hypotheses (i.e., positive correlations), a one tailed test was employed to test for the significance of the correlations (Glass & Stanley, 1970). Thus for 64 degrees of freedom and a significance level set at .05, the critical value is

$r = +.20$. As can be seen from Table IV, only one persistence measure (situation 3) is significantly correlated to one achievement measure (Reading) while IQ is not significantly correlated to any of the persistence measures. Additionally, motor interventions for the spelling test (situation 4) is significantly correlated with scores on the Reading sub test ($r = .243$; $p < .05$). Thus there is very little and indirect support for hypothesis 5.

The spelling test (situation 4) is the only situation that was clearly represented as a "testing" situation while none of the other five were (see Table I, Chapter IV). Nevertheless, only one of the four achievement measures was correlated with persistence in situation 3, while none were correlated to situation 4. Accordingly, there is very little support for hypothesis 5 and its tenability is weak.

As can be seen from the data hypothesis 6 gains no support whatsoever. Apparently, persistence in the six situations as devised, is unrelated to intelligence. This does not fit the prediction of hypothesis 6 and accordingly, this hypothesis is falsified.

In order to explore further the validity of the relationships between the proposed personality dimension (interventionist - noninterventionist), persistence, IQ, achievement, ses and sex, several further analyses [illegible] are reported in the next section.

Validity Of The Proposed Personality Dimension

To establish the validity of the proposed relationships between the various variables assessed and the interventionist-noninterventionist personality dimension is a complex matter. Nevertheless, within the confines of the data collected on the present sample, several further analyses may be profitably conducted. For these may give further insights into any relationships which may exist. Accordingly, two further major types of analyses were conducted to explore these relationships. These were a factor analysis and a multiple regression analysis which [illegible]

Factor Analysis Of The Data

The factor analysis was conducted as an exploratory analysis. This was done in order to uncover what factors (if any or more than one) were basic to the relationships between persistence in the contrived situations and the naturalistic situations. Furthermore, the relationships between interventionism, persistence, intelligence, achievement and socioeconomic class were also explored. Accordingly, the following analyses are explorations of these relationships.

Before variables were intercorrelated, the achievement scores were transformed into standard scores as described above. This was done so that a standard unit could be derived for achievement from the two levels of the test form that was administered [illegible]

intercorrelations. This new variable was derived by dividing the spelling test persistence time by the number of words that each subject had attempted on the spelling test. This was done so as to "partial out" the speed of writing words since some subjects may have taken longer on the spelling test because they were slow at writing or printing the words. Hence a common unit of persistence without influence from speed of writing was derived for the spelling test. Subsequent to these transformations, all variables were intercorrelated (18 variables; see Table V). The resulting intercorrelation matrix is shown in Table V.

This matrix was then factored into principal components (Veldman, 1967, p. 111-117). The communalities were estimated by iterating the factoring routine until convergence at the .001 level was achieved. Convergence required 11 iterations.

There were apparently 4 factors in the data since the eigenvalues respectively were 3.50, 3.14, 2.16 and 1.82. The resulting unrotated principal factor matrix is shown in Table VI. An inspection of this table reveals that 60.63% of the total variance is "accounted for" by the four factors. Since there is no theoretical basis upon which to suppose that the four factors are other than orthogonal, the four factors were orthogonally rotated to the normalized varimax criterion (Veldman, 1967, p. 240-265) [illegible]

achievement and IQ variables load highly on Factor 1 while there are no loadings from any other variables. This factor appears to underlie the relationships between intelligence and academic achievement and hence was labelled an Academic factor. Four variables load highly on Factor 2: persistence at interventionist attempts in situation 5 (small group), frequency of motor interventions and frequency of verbal interventions both in situation 5. It seems that this factor underlies the relationships in attempts to structure and control the activities and direction of the small group. Moreover there is a negative loading (.33) from the sex variable on Factor 2. This and other evidence (negative correlation of GPI with sex: r = .31) indicates that males tended to be more interventionist in the small group situation than were the females.

Factor 3 was called a "Test Control" factor because all variables (motor and verbal interventions, persistence, "adjusted" persistence i.e., SST) on the spelling test (situation 4) load on this factor while there are no other loadings from other variables. This factor then seems to underlie interventionist behavior and persistence in a "test taking" situation wherein difficulties and obstacles to performance rise.

Factor 4 (Persistence factor) is a particularly interesting factor. As the reader will notice from Table VII, four persistence variables load on this factor (from

situations 1, 2, 3 and 6) as well as the ses variable. This finding tends to lend support to the suggestion that persistence may be a generalized predisposition (at least in some subjects) and seems to be influenced by, or related to, socioeconomic conditions. In the present sample there seems to be a generalized disposition to persist at certain types of common activities; this appears to be related to ses.

The following interpretation may be applied to the findings of the factor analysis. First, it is clear that situations 1, 2, 3 and 6 all shared common features in that subjects undertook individual tasks whose solution or execution required persistence. None of these situations were represented as being "tests" in the usual sense of the word. Persistence at these tasks therefore is not test-taking persistence as it appears to be in the spelling test situation. Even though situation 6 differed from the other three (1, 2 and 3) in the important way that it was a naturalistic situation, subjects displayed the same persistence "habits" or predisposition in all four of these situations. This, despite the fact that behaviors in situations 1, 2, and 3 were experimenter initiated while in situation 6 they were naturally occuring. It is important to note that ses also loads on this factor. This is due to the correlation between ses and persistence in situation 6 ($r = .28$) so that it appears that socioeconomic conditions influence self-initiated behavioral persistence at least in

the classroom related activities that were assessed in the present study.

Second, it is interesting to note that persistence on the spelling test did not load on the general persistence factor (Factor 4) but rather formed a factor of its own. This situation differed from the others in that the task to be done was clearly represented as a test. Accordingly, in the present sample, test-taking persistence and persistence at other tasks which are naturally occurring or are not represented as tests, are independent.

Third, intervention and persistence scores measured in the small group situation (situation 5) formed an independent factor with sex loading on it. This was clearly an unstructured social situation, where naturally occurring behaviors were recorded. Apparently, in this situation, initiating behaviors and attempts at group control and domination (both verbal and motor) are related to gender -- males are both more persistent and interventionist than were females.

Finally, IQ and achievement variables formed an independent factor (Factor 1) which was unrelated to persistence, ses or sex.

Multiple Regression Analyses

In this section, three multiple regression analyses are presented. These analyses were done to determine the relationships between achievement, the six persistence variables, ses and IQ. First, a stepwise regression analysis (Kerlinger & Pedhazur, 1973) was preformed for the six persistence variables, ses, IQ and a composite achievement score (mean score of the four sub-tests) for the whole sample and then the same analysis was done for males and females separately.

It is usually thought that multiple linear regression is a technique used to generate linear equations to predict a criterion variable (Kerlinger & Pedhazur, 1973; Winer, 1962). In the present study the interest is not so much to generate a prediction equation but rather to determine the relative importance (and relationships) of the variables in "accounting for" achievement. This can be done for the sample as a whole as well as for sub-groups of the sample. Unfortunately, when the sample is broken down either by sex or IQ, the number of subjects in some groups become so small that a meaningful regression analysis cannot be computed. Moreover, the interest in this series of analyses is in demonstrating that structural relationships between variables can change dramatically when different groups are studied. Thus, since there are adequate numbers in the gender sub-groups to preform this analysis, and since the analysis is only meant to be demonstrative of

principle, the analysis was done for males and females separately as well as for the whole group

Multiple Regression Analysis For The Whole Sample

A stepwise multiple linear regression is an analysis wherein variables are entered in turn into a regression equation according to their relative importance in "accounting for" the variability in the criterion variable (Kerlinger & Pedhazur, 1973; Winer, 1962). Thus the variable that accounts for most of the variance is included first, then the variable which accounts for the next most is second, the next third and so on. Moreover, each variable is analyzed at each step for the statistical significance of the contribution to the criterion variability. If and when no further significant contributions are made by the remaining variables, the regression analysis is terminated. In the present analysis, to control for excessive Type I errors (Kupper, Stewart & Williams, 1976) the .01 level of significance was used as each variable was entered into the equation. When variables made no further contributions at the .01 level of significance, the regression analysis was terminated.

Eight variables (ses, IQ and the six persistence variables) were treated as independent or predictor variables while the composite achievement variable was treated as the dependent or criterion variable. Hence the [illegible]

variables (or those that made significant contributions at the .01 level of significance) as they relate to the criterion variable. The results of this regression analysis are summarized in Table VIII.

The zero order correlations (simple r) derived from this analysis, provide an unadjusted measure of the relationship between the dependent and independent variables. The multiple correlation (multiple r) reflects the relationships between all the variables entered at any point and the criterion variable. The coefficients of determination (r^2) reflect, in descending order, both the order of entry and the magnitude of the explained criterion variable variance. Successive differences between these coefficients (i.e., the squared semi partial correlations, designated "r^2 change") indicate the contribution of each predictor variable to the explained variance. All these statistics are summarized in Table VIII.

As can be seen from these data, approximately 44% of the variation in achievement is due to the first four variables in the equation with IQ making the largest contribution (29% of the variance). The other three variables (PICT, PI and SES) all make modest contributions and are significant at the .01 level. Though the remaining three variables (GPT, INC, SPI) make statistically significant contributions to the total variation ($p < .01$) their inclusion in the equation is not really [illegible] there are little further gains in

(1%). The eighth variable (MT) did not reach a statistical level of significance (p > .01) and therefore was not included in the equation.

There is an important point to notice from this analysis. In addition to the amount of variation explained by the four variables, special note should be made of the order of the variables as entered into the equation. So for the whole group, the order of importance of the variables was as follows: (1) IQ, (2) PICT, (3) RT, and (4) SES. These four variables accounted for 44% of the total variation in academic achievement. The importance of these facts will be returned to in a later section.

Multiple Regression Analysis For Males Only

The same stepwise multiple linear regression analysis as was performed for the whole sample, was performed for the data on males only. The same eight independent variables (IQ, ses, and six persistence variables) and the same dependent variable (Achievement) was entered into the analysis. As before, the nominal level of significance was set at .01. The results of this analysis are summarized in Table IX.

The first four variables in Table IX (IQ, INCL, SPT, GPT) account for approximately [illegible]% of the total variation in achievement. As before, IQ made the largest contribution ([illegible]%). The remaining four variables (MT, SES, PICT, RT), [illegible]

real contribution and accordingly, do not warrant consideration in the regression equation.

The major interest when comparing the two regression analysis, is the structural relationships between the variables in the two groups. IQ figures as the most important variables for both groups -- hardly a surprising finding since the criterion variable is achievement. This is consistent with other studies which have shown that IQ is generally the most important variable in accounting for academic achievement (e.g., Atkinson, 1974; Atkinson & Raynor, 1978). For the whole sample, ses figured as the 4th most important variable in contributing variation to achievement while for males only, it was 6th. Similarly, PICT and RT figured in the contribution for the whole group while they didn't enter into the equation with four variables for males only. For both groups however, approximately 40% of the variation in achievement was accounted for by the first four variables. The central point to be made in this comparison is that there appears to be a structural difference in the relationships between variables. Also, there are definite differences in which variables figure prominently in the equation for the two groups. This is further indicated in the analysis for females only.

Multiple Regression Analysis For Females Only

As before, and using the same variables and significance criterion, a stepwise linear multiple regression analysis was done on the data, but this time for females only. The results of this are summarized in Table X.

From this it can be seen that with all eight variables, 62% of the variance in achievement can be explained. However, after six variables, the contribution from the other two is trivial (2%). Nevertheless, it is clear that a larger proportion of the variance can be explained for females (60%), than for males (39%), or for the whole group (44%). Moreover, for females IQ contributes a larger proportion (34%) than for males (27%), or for the whole group (29%). Again the pattern of variable ordering and contribution is quite different for females than it was for the whole group or for males only.

In the whole group, ses made an important contribution (it was 4th), whereas it was 6th for males and 5th for females. To reiterate, the important point that emerges from this analysis is that for sub groups of the sample (in this case gender) the relationships between variables and their relative importance for determining an outcome can be quite different both from each other and from the sample as a whole. These findings are consistent with the aforementioned suggestions, as well as those of others (e.g., Epstein, 1980; Feshbach, 1978; Lamiell, 1981) that there may not be a universal pattern of personality organization and content that

is applicable to all people. Rather it appears that there may be differences in the content, organization and stability of personality among sub-groups of the population. The theoretical significance of these findings are discussed further in the following pages.

Discussion

Theoretical Significance Of The Findings

The theoretical significance of the findings are discussed in three separate sections below.

The Consistency Hypotheses. All of the first four hypotheses that were proposed and tested dealt with the stability of behavior. In the present study, the behavior that was studied was behavioral persistence in six distinct situations. Since the behavior measured in these situations (duration of time on task, i.e. persistence) could be measured with very good reliability and validity (i.e., with a stopwatch or equivalently accurate and reliable instruments) it was hypothesized that much more accurate estimates of the transsituational consistency of behavior could be produced than is usually the case with indirect assessments. Therefore, it was predicted (hypothesis 1) that since little of the variability in the measured behavior would be due to the unreliability of the instrumentation, higher consistency would be found than is usual with the unreliable indirect

assessments of questionable validity. In addition to this, a better sampling of situations (6) was done than is usual where perhaps only 2 or 3 situations are employed. Finally, both naturalistic and contrived situations were employed so that a more valid and adequate sampling of the behaviors in question could be done.

The six situations were treated within the context of classical test theory (Lumsden, 1976) as if they had been independent items from a test or questionnaire. Thus Cronbach's alpha was used to compute the "internal consistency" of behavior or the reliability of behavior across the 6 situations. The resulting coefficient is an estimate of the transsituational consistency of behavior or that portion of variability of behavior that is due to person factors (Cartwright, 1975).

For the aggregate, Cronbach's alpha was .46 indicating that 46% of the variation in behavior was due to personality factors (Cartwright, 1975; Cronbach, 1971). This estimate is considerably higher than that found in the usual indirect assessment techniques with correlational analysis (Mischel, 1968, 1973a) or the multiple variance component techniques (Endler, 1975, 1977). From these data it can be concluded that hypothesis 1 was clearly supported.

The implications of these findings are clear. The contribution to behavior of personality factors do not appear [illegible] as has been suggested (e.g., Endler, 1975,

1977; Endler & Magnusson, 1976a, 1976b; Mischel, 1968). Clearly personality factors (at least within the limited context studied in the present thesis) do contribute a great deal to behavior. This further implies that in the usual indirect assessments, much of the variability that was found was due to the "noise" of measurement -- namely the unreliability and lack of validity of tests, questionnaires, inventories, adjective check lists, projectives, semi projectives and so forth. Obviously, though personality is important in contributing to individual behavior, it is no longer valid or meaningful to think it possible to be able to assess personality with pencil and paper instruments. As Fiske (1974, 1977, 1978a, 1978b, 1979) and other descriptive personologists (Elms, 1975; Epstein, 1979a, 1980; Goldfried & Kent, 1972; Lamiell, 1981; Phares & Lamiell, 1977; Travis & Violato, 1981) have suggested, the behavior of interest itself must be studied so that its transtemporal and transsituational stability (or lack of it) can be discovered. Speculations, controversy and squabbling over the existence (or lack of it) of amorphous and ill defined motives, constructs, traits, and other hypothetical entities, have seemed to be largely a waste of time and energy. At this point, though it may seem premature to dismiss the possibility of eventually constructing pencil and paper tests of behavioral traits once an adequate sampling of behavior has been gained, this prospect is now highly unlikely. Goldfried and Kent (1972) for

example, felt that this may be possible. For the present writer, the central significance of the findings from the testing of hypothesis 1, is that personality must be re-conceptualized so that assessments of behavior itself can be made within a theoretical framework.

Hypotheses 2, 3 and 4 all predicted that for different sub groups of the sample, the transsituational consistencies of behavior would vary. It was argued on theoretical grounds (see Chapters III and IV), that three important variables that would co-vary with consistency were intelligence, gender and socioeconomic class. These assertions were supported unequivocally. Let us consider the importance of this, first for each variable then for personality assessment in general.

For intelligence consistency was highest for the low ability group while the lowest stability was found for the high ability group. The mid range ability group was much like the sample as a whole in their stability. The lowest IQ group may not have been able to perceive clearly that some of the tasks assigned in some situations were unsolvable (i.e., ring and maze puzzle); hence they persisted at these (or failed to persist) as was their habit. These low ability subjects may have treated the situations as all one of a kind and failed to discriminate between situations. Meanwhile, the mid range group tended to be somewhat less stable while the high IQ group tended to be the most erratic. If that word is

permissible. This indicates that the high ability subjects may be more flexible -- and hence more adaptive - than lower ability subjects. The high ability subjects may have persisted when they perceived that the task was intrinsically interesting while they didn't persist if this was not so. The high ability subjects may have been able to make finer discriminations among situations and therefore adapted accordingly. The fact that the higher IQ subjects tended to be less stable (and hence less predictable) is consistent with anecdotal reports of people of outstanding abilites (Gelmar, 1980) as well as some biographical reports (Fiesler, 1971; Roazen, 1969). In any case, it is clear that intelligence is an important factor related to the stability of behavioral persistence.

The second important variable that moderated cross situational stability was gender. Males showed far higher stability ($r = .60$) than did females ($r = .02$). Therefore, approximately 60% of the variation in behavioral persistence for males was due to personality factors while only 2% was due to the same factors for females. While it is not possible in the present study to assess the degree to which the differences in stability reflect socialization practices which insure sex differences in response consistency, one could conjecture that there may be inherent sex differences in [illegible] the interplay between level of

relatively young (mean age = 9 years, 2 months), we know that gender role identity begins at an early age approximately coincidental with language development and learning at about 1.5 years of age (Money, 1965; Money & Ehrhardt, 1972). Consequently, the present subjects have developed clear gender identity at their present age, part of which may be in response consistency. One could speculate however, that since the differences in response consistency are so dramatic, that they may not be due solely to socialization practices but rather reflect inherent sex differences. In any case, the extent to which these differences are due to either of these two factors (or both) remains a moot point only further research can clarify this matter.

The final variable that was analyzed with respect to response consistency variation was socioeconomic class. Again, hypothesis 3, which predicted response consistency differences across ses levels, was conclusively supported. The group which showed the highest response consistency (CA = .61) was ses group 1 ('professional managerial') while the lowest stability (CA = .09) was for ses group 4 (non-skilled labour). These findings confirm the proposition that personality organization may vary with socioeconomic conditions (Bandura & Walters, 1963; Colon, 1973; Feshbach, 1978; Fromm, 1962; Travis, 1975).

The most stability is demonstrated by subjects from the professional group since they have incorporated [illegible] stability

and consistency from the behavioral ecology within which they have been reared (Coles, 1977; Jencks, 1972; Weinstock, 1967). Similarly, relative instability and inconsistency is reflected in the other ses groups perhaps because they have been reared in less stable and consistent environments. The highest cross-situational stability was found in males from the professional/managerial group (CA = .70; n=9). For this sub-group, approximately 70% of the variation in the transsituational stability of behavioral persistence was due to personality factors -- a far cry from the general findings of 9-10%. In the non-skilled labour group, only 8% of the variance is due to personality factors; the other two groups were associated with only 22% and 39% of the total variation (see Table III).

Clearly, personality organization and response consistency appear to be related to position in an uneven distribution of power (i.e., class position). Thus in response to Feshbach's (1978) question, "What conditions foster continuity and organization in behavior and what conditions foster discontinuity and segmentation" (p. 449), comes the riposte that position in an uneven power distribution (as reflected in socioeconomic class) is a very important condition with profound effects. In consonance with this observation, it was found that the most privileged subjects (professional/managerial) demonstrated the most continuity while the least privileged (non skilled labour) demonstrated

the least stability.

The findings discussed in this section have at least two important implications: (1) It is no longer adequate to conceive of and assess personality as has traditionally been done. We cannot continue to rely on pencil and paper assessments if we are to expect progress in our understanding of personality. Better quality instrumentation and data are required for providing useful directions for research. (2) It can be concluded that the transsituational stability in behavior varies markedly for certain subgroups in the population. Therefore, results from aggregates tend to overestimate stability for some while they underestimate it for others. However, since low ses groups form the major proportion of the population, assessment of stability on aggregates will tend to produce consistently low estimates of stability even though it may be high for a few individuals.

Stability for some subjects may be so low that only trivial portions of the variation in behavior is due to personal factors. Hence it is central to know this for their personality description. Other individuals may show much higher stability on these dimensions. Hence we must be willing to abandon the long standing assumption that any single attribute will contribute more or less equal variability in individual behavior for all individuals. This line of thinking has been expressed by others (Bem & Allen, 1974; Laurick & Stringfield, 1980; Lamiell, 1981).

It follows that the central and important assumption on which individual differences research has been based -- that it will ultimately lead to the isolation of a few attributes that are necessary and sufficient to describe the personality of any given individual (Lamiell, 1981; Mehrabian & O'Reily, 1980) -- is no longer tenable or useful. In the present study, for some individuals, persistence is a relatively stable personality dimension while for others it is highly unstable. Thus, for some individuals the "trait" of behavioral persistence is a meaningful quantitative description of their personality, while for others it is meaningful in the sense that we can say that these people are highly unstable on this dimension.

This resurrects long standing suggestions (e.g., Allport, 1937, 1966) that personality must be investigated both from an idiographic and a nomothetic approach yielding what Lamiell (1981) has dubbed an idiothetic approach. From this perspective, individuals' personalities are described within the idiographic tradition (here the dimensions on which individuals are stable or unstable could be defined) while individual differences are researched from a nomothetic viewpoint. Data from both perspectives is necessary to make any progress in studying personality. Lamiell (1981) has expressed this more forcefully: "...such data ...are absolutely necessary for the purposes of a science of personality" (p. 305). Such a conception allows us to move beyond the simple

but untenable assumption that there are a few personality dimensions which are adequate descriptors of all people and are necessary and sufficient to describe both the personality of individuals and individual differences.

The Persistence Hypotheses. Both hypotheses 5 and 6 predicted that behavioral persistence would be postively correlated with achievement (hypothesis 5) and intelligence (hypothesis 6). Though there was some weak and indirect support for hypothesis 5, there was no support for hypothesis 6.

Only one of the six situations (spelling test) could conceivably be regarded as an achievement situation. Here it was motor intervention that was significantly correlated with achievement on one of the subtests (Reading) rather than actual persistence itself. The fact is that achievement in the present study was very narrowly defined as performance on the CTBS. It may very well be that the situations which the subjects were exposed to were too remote from actual academic achievement. Perhaps we should not be surprised that there was was very little connection between achievement as measured and persistence in the situations that were used. To address this hypothesis more adequately, it may be necessary to assess persistence in situations which are more clearly achievement oriented or to define achievement such that it is more relevant to the particular situations in which persistence is

measured.

Atkinson (1981) cited Feather's (1961, 1962) work in attempt to suggest that persistence is a "complex motivational phenomenon rather than a personality trait" (p. 117). This conclusion is both correct and incorrect. For the reasons discussed in the previous section, it is clear that for some people it can be more profitably regarded as a "complex motivational phenomenon" while for others, it very clearly is a personality trait. Thus for those who show little stability, it is not surprising that no relationships with achievement were found. But even for those who did show stability no such relationships were found. Again, this suggest that persistence as measured in the present situations is incompatible with the narrow definition of achievement used. Hypothesis 5 then, was probably stated in too simple terms and further research is required to more adequately test this hypothesis.

There also was no support for hypothesis 6 which predicted that intelligence would be positively correlated with persistence. For the same reasons as discussed above, this is not surprising. Though IQ was strongly correlated with achievement, neither were related to persistence (see Table IV). Intelligence was, apparently, a mediating factor which, in part determined whether subjects would or would not persist in a given situation. Thus the relationships between IQ, persistence and achievement are complex and [illegible] how they are related.

Validity Of The Proposed Personality Dimension. The factor analysis clearly indicates that there were four factors in the data: 1-Academic, 2-Group Control, 3-Test Control, and 4-Persistence. Factor 1 is self-explanatory. Factor 2 underlies behavior in a group-social unstructured situation and clearly shows that this is a gender related activity (sex has a -.33 loading). This confirms the suggestion (Chapter IV) that males tend to more interventionist than females in an unstructured social situation. Factor 3 indicates that there is a relationship underlying interventioinist behavior and persistence in a "testing" situation. There were high loadings on this factor from persistence (raw time on task = .96), the transformed persistence (SST = .68), motor interventions (.65) and verbal interventions (.54). This indicates that in this situation which clearly differed from the other five in at least one important way, there is a common factor underlying persistence and interventionism. Factor 4 is clearly a persistence factor demonstrating the generalized nature of persistence across the four situations.

These findings suggest at least three important conclusions. First, there is substantial evidence to indicate the validity of a generalized behavioral orientation (at least for some particularly professional/managerial people) herein labelled "transformational interventionist". Second, behavioral persistence is related to other indicators of interventionism in the situations where this was assessed

There is then, some strong evidence for the validity of considering persistence as a manifestation of interventionism. And third, interventionism must be considered and understood in relation to the situation of interest.

The stepwise multiple linear regression analyses generally supported the validity of the notion that different structural relationships of personality exist in different groups of people. This provides indirect support for the posited transformational interventionist - transformational noninterventionist behavioral orientations. For those who are essentially noninterventionist in orientation, situational characteristics take on great importance in determining behavior. For those who are more interventionist in orientation, personality factors are of greater importance.

Specifically, for achievement, IQ seems to be of central importance for all three groups analyzed. But while ses figured as an important variable for the whole group, it lost its importance when males and females were analyzed separately. It is almost paradoxical that for females (who showed little stability) we were able to account for a large proportion of the variance in achievement (60%). For males (who showed much higher stability) only 39% of the variance in achievement could be accounted for. Due to the fact that personality factors (at least persistence) seem to be more important and stable for males, a better and more complete understanding of their personality is required to better

predict achievement. For females, where individual differences seem to be less important, a fairly adequate accounting of their achievement was possible by simply understanding situational qualities to which they were exposed. In both a technical and very real practical sense, males seemed to be more reliable than females, at least in the present study with the limited number of situations and content of personality studied.

Summary And Conclusions

This study began with the observation that psychologists have fallen into a state of despair with respect to the study of personality. This despair was initiated and sustained by the onslaughts of critics like Mischel (1968) as well as others (Peterson, 1968; Vernon, 1964). Thus the basis for analyzing orthodox personality theories and their weaknesses was established. From the present study it can be concluded that conventional personality theories and measurement models are very inadequate as a basis for understanding personality. The psychodynamic model founded by Freud (1900, 1910a, 1910b), and extended by Erikson (1963), Fromm (1962) and others, can no longer be considered as an adequate way to conceive of and study personality. The psychodynamic model is in fact, considered by some scholars (e.g., Popper, 1976; Szasz, 1970) to be little more than secular religion. The psychodynamic model has turned out to be of little use in the [illegible]

of a science of personality. The trait model, especially when employed strictly within a nomothetic approach, is artificially simple since it is assumed that there are a few universal traits which are both necessary and sufficient for the description of individuals' personalities as well as individual differences. This assumption is not tenable. Moreover, the assessment techniques and measurement instruments used within the trait model are profoundly inadequate and are frequently foolishly employed. The interactionist model, as it is currently employed and which has been touted as a "new synthesis", is little more than an empirical obfuscation of a theoretical conceptual problem. It probably has contributed more confusion than clarity to the study of personality.

From the empirical investigation in the present study the following conclusions can be drawn:

(1) Behavioral assessments or behavioral census produces qualitatively better data than does the usual indirect assessments.

(2) Better estimates of the transsituational consistency of behavior (or lack of consistency) can be produced by assessing behavior itself rather than employing indirect assessments.

(3) On some behavioral dimensions, some individuals may be very stable while others may be completely unstable. For those who are in fact very little variability in individual

situational conditions are of greater importance in accounting for these individuals' behaviors than they are for the stable individuals.

(4) A corollary from conclusion (3) is that transsituational consistency may itself be a personality dimension.

(5) Data derived from both nomothetic and idiographic approaches (i.e., an idiothetic approach) are necessary for the better understanding of personality organization, dynamics and development.

(6) With reference to the consistency specificity issue, estimates of behavioral consistencies derived from aggregates are poor guides for estimates for individuals in general. It is clear that there are some important variables that covary with behavioral stability. Three such variables, as discovered in the present study, are social [illegible] and intelligence.

(7) There appears to be adequate evidence to indicate that it may be profitable to cast personality as behavioral style. At the most general level of analysis, these contrasting styles can be conceived as transformational interventionist and transformational noninterventionist.

Further studies of this type might well include provisions for the investigation of how other important socio-cultural variables (e.g., political affiliations, religiosity, educational level, ethnic origin and so forth) covary with

profitably explored as well. It is clear from the present study however, that the person or (P) factor in the classical B=f(P,S) function (or any of the contemporary transformations), is not as superfluous as some of the critics of personality have claimed in recent times.

In conclusion then, this study suggests that assessment of personality in terms of directly observable behavior looks promising. Such work may help us to eventually circumvent some of the endemic difficulties of traditional personality assessment and research. The systematic observation, and classification of human behavior which is socially significant and which occurs in situations of particular interest, may provide a useful direction for the building of a solid data base. This will be no quick and easy task. It will require intensive observation, recording and labour [illegible] better understanding of [illegible]

Table II

Descriptive Statistics for the Sample*

Variable[1]	Min	Max	Range	Mean	Variance	Standard Deviation
IQ	79	150	71.0	105.7	190.2	13.8
AGE (months)	[illegible]8	22	24.0	10.2	45.3	6.7
ACH (%ile)	6	97	91.0	56.9	745.3	27.3
VOC (%ile)	2	96	84.0	63.2	756.3	27.5
RE (%ile)	1	95	94.0	59.5	806.6	28.4
MC (%ile)	3	94	91.0	19.8	756.3	[illegible]
[illegible]	6	98	92.0	[illegible]5.9	[illegible]70.8	5.9
[illegible]	0	32	32.0	[illegible]7	19.7	7.1
GVI	0	29	29.0	[illegible].5	50.6	7.1
CPI	0	[illegible].2	5.2	1.2	3.1	1.8
SMI	0	92	92.0	17.[illegible]	52.2	9.8
SVI	0	[illegible]1	21.0	[illegible]8	1[illegible].1	4.1
SP [illegible]	8	[illegible].4	15.6	10.9	15.5	3.9
AT	11	40	29.0	18.5	38.5	6.2
RT (min)	[illegible]7	35.2	[illegible]	7.6	51.3	7.2
[illegible]T (min)	4.0	35.3	31.2	16.2	[illegible]1.5	9.5
[illegible] (min)	1.0	[illegible]3.8	[illegible]9.9	[illegible]5	1[illegible]	[illegible]2

*n = 65

[1] Description of [illegible]

[2] [illegible]

Table III

[illegible]

Hypoth[illegible]	Sub-Gr[illegible] Sample	Cronb[illegible] [illegible]	Number [illegible]	Percent [illegible]
	Male	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
	Entrepreneurial	[illegible]	[illegible]	[illegible]
	Professional M[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]		
	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Table [illegible]

[illegible] Correlation Matrix of Persistence Times in the [illegible] with Achievement Variables and [illegible]

			Situations			
Variables	01	02	03	04	05	06
[illegible]	06	01	10	[illegible]	02	14
Reading	[illegible]	[illegible]	[illegible]	05	08	.18
Math Concepts	10	[illegible]	10	11	.10	.03
[illegible]	[illegible]	[illegible]	[illegible]	04	06	06
	[illegible]	[illegible]	[illegible]	[illegible]	01	[illegible]

[illegible]

Table V

Intercorrelation Matrix of Persistence Times, Interventionist Variables, Achievement Variables, IQ, SES and SEX*

	GMI	SPT	PICT	INCL	RT	MT	SEX	SES	GPT	GVI	SMI	SVI	IQ	SST	VOC	READ	MC	MP
GMI	--	03	-11	-04	-13	-13	-20	-19	72	80	00	05	-01	09	02	-08	-10	-06
SPT	03	--	08	10	17	-13	-02	04	13	25	66	49	00	69	-02	05	-11	-04
PICT	-11	08	--	34	40	17	20	18	01	-03	11	-03	-14	12	19	22	10	15
INCL	-04	10	34	--	13	24	04	28	01	03	06	07	-01	-07	14	18	-03	06
RT	-13	17	40	13	--	31	-11	16	-01	-01	10	11	-10	12	01	-01	-22	-21
MT	-13	-13	17	24	31	--	-03	04	-07	-04	-22	-13	-14	-08	06	-02	-10	-19
SEX	-20	-02	20	04	-11	-03	--	16	-31	-28	19	-20	-19	-17	05	00	02	11
SES	-19	04	18	28	16	04	16	--	-03	-16	12	10	11	08	36	30	06	25
GPT	72	13	01	01	-01	-07	-31	-03	--	73	05	34	08	18	07	-10	-08	-11
GVI	80	25	-03	04	-01	-04	-28	-16	73	--	14	17	-04	18	05	-05	-05	-12
SMI	00	66	11	06	10	-22	19	12	05	14	--	32	14	36	19	24	03	10
SVI	05	48	-03	07	11	-13	-20	10	34	16	32	--	29	43	22	19	-01	01
IQ	-01	00	-14	-01	-10	-14	-19	11	08	-04	14	29	--	-13	50	57	35	41
SST	09	69	12	-07	12	-08	-17	08	19	18	36	43	-13	--	-14	-04	-15	-05
VOC	02	-02	19	14	01	06	05	36	07	05	12	22	50	-14	--	79	56	62
READ	-08	05	22	18	-01	-02	00	30	-10	-05	24	19	57	-04	79	--	51	59
MC	-10	-11	10	-03	-22	-10	02	05	-08	-05	03	-02	35	-15	56	51	--	74
MP	-06	-04	15	06	-21	-19	11	25	-11	-12	10	01	41	-05	62	59	74	--

*All coefficients have been rounded to two places and decimal points have been omitted.

Table VI

Unrotated Factor Matrix Using Principal Factors

Variables	Factors I	II	III	IV	Communalities
GMI	-.22*	.62	-.55	.11	.74
SPT	.03	.67	.66	-.24	.94
PICT	.21	.02	.29	.49	.37
INCL	.16	.04	.17	.41	.23
PT	-.06	.68	.38	.47	.38
MT	-.08	-.17	.09	.49	.28
SEX	.10	-.26	.19	-.01	.11
SES	.35	-.01	.21	.23	.22
GPT	-.16	.73	-.39	.21	.75
GVI	-.19	.75	-.38	.18	.78
SMI	.24	.43	.43	-.18	.45
SVI	.17	.51	.22	-.09	.36
IQ	-.55	.14	-.18	-.16	.38
SST	-.09	.52	.45	-.15	.50
VOC	.85	.15	-.15	.20	.82
READ	.85	.11	-.02	.09	.74
MC	.67	-.06	-.24	-.14	.53
MP	.77	-.02	-.16	-.14	.64
Percent of Variance	20.0	17.4	13.1	10.1	

Percent of total variance = 60.6

*Factor loadings and communalities have been rounded to 2 decimal places.

Table VII

Factor Matrix Orthogonally Rotated to the

Normalized Varimax Criterion

Variables	Factors I Academic	II Group Control	III Test Control	IV Persistence
GMT	-.02*	.85	-.02	-.13
SPT	-.07	.05	.96	.06
PICT	.10	-.07	.08	.59
INCI	.08	.01	.03	.47
RT	-.18	-.04	.14	.57
MT	-.14	-.03	-.21	.46
SEX	.03	-.33	-.03	.07
SES	.27	-.14	.11	.34
GPT	-.01	.85	.14	.03
GVI	.03	.87	.16	.01
STI	.16	-.02	.65	.04
SVI	.15	.20	.54	.03
IQ	.59	.06	.08	.12
SST	.15	.11	.68	.03
VOC	.86	.08	.03	.27
REAL	.82	-.06	12	.21
MC	.71	-.07	.09	-.11
MF	.72	.12	.00	.06
Percent of common variance	24.9	20.4	21.2	13.5

*Factor loadings have been rounded to two decimal places

Table VII

Stepwise Multiple Linear Regression of Achievement for the Whole Sample

Variables	Multiple r	r^2	r^2 change	simple r	Beta weights
1. IQ	.54*	.29	.29	.54	.54
2. PICT	.60	.36	.07	.28	.32
3. RT	.63	.40	.04	-.13	-.22
4. SES	.66	.44	.04	.28	.23
5. GPT	.67	.45	.01	-.07	-.11
6. INCL	.67	.45	.00	.13	-.00
7. SPT	.67	.45	.00	-.03	-.03

Constant = -3.33

*All coefficients have been rounded to 2 decimal places

Table I

Stepwise Multiple Linear Regression of Achievement for Males Only

Variables	Multiple r		r^2 change	simple r	Beta Weight
1. IQ	.52	.[illegible]	.[illegible]	.52	.[illegible]
2. INC	.5[illegible]	.[illegible]	.0[illegible]	.[illegible]	.2[illegible]
3. SPT	.6[illegible]	.[illegible]	.[illegible]	-.[illegible]	-.[illegible]
4. GPT	.6[illegible]	.[illegible]	.[illegible]	.[illegible]	.[illegible]
5. MT	.6[illegible]	.[illegible]	.0[illegible]	-.[illegible]	-.[illegible]
6. SES	.6[illegible]	.[illegible]	.0[illegible]	.[illegible]	.[illegible]
7. PIC	.6[illegible]	.[illegible]	.0[illegible]	.[illegible]	.[illegible]
8. EC	.6[illegible]	.4[illegible]	.00	.[illegible]	-.[illegible]

Constant = -3.[illegible]

*All coefficients have been rounded to 2 decimal place.

N = [illegible]

Table X

Stepwise Multiple Linear Regression of Achievement for Females Only

Variables	Multiple r	r²	r² change	simple r	Beta Weight
1. IQ	.59*	.3[illegible]	.3[illegible]	.5[illegible]	.4[illegible]
2. PIC	.7[illegible]	.4[illegible]	.[illegible]	.4[illegible]	.3[illegible]
3. INC	.7[illegible]	.51	.0[illegible]	-.0[illegible]	-.[illegible]
4. P[illegible]	.7[illegible]	.5[illegible]	.0[illegible]	-.[illegible]	-.2[illegible]
5. SE[illegible]	.7[illegible]	.5[illegible]	.0[illegible]	[illegible]	.2[illegible]
6. GP[illegible]	.7[illegible]	.5[illegible]	.0[illegible]	-.2[illegible]	-.[illegible]
7. SPT	.7[illegible]	.5[illegible]	.0[illegible]	.1	.1[illegible]
8. P[illegible]	.7[illegible]	.6[illegible]	.[illegible]	.0[illegible]	.1

Constant = -2.6[illegible]

*All coefficients have been rounded to 2 decimal places

n = 2[illegible]

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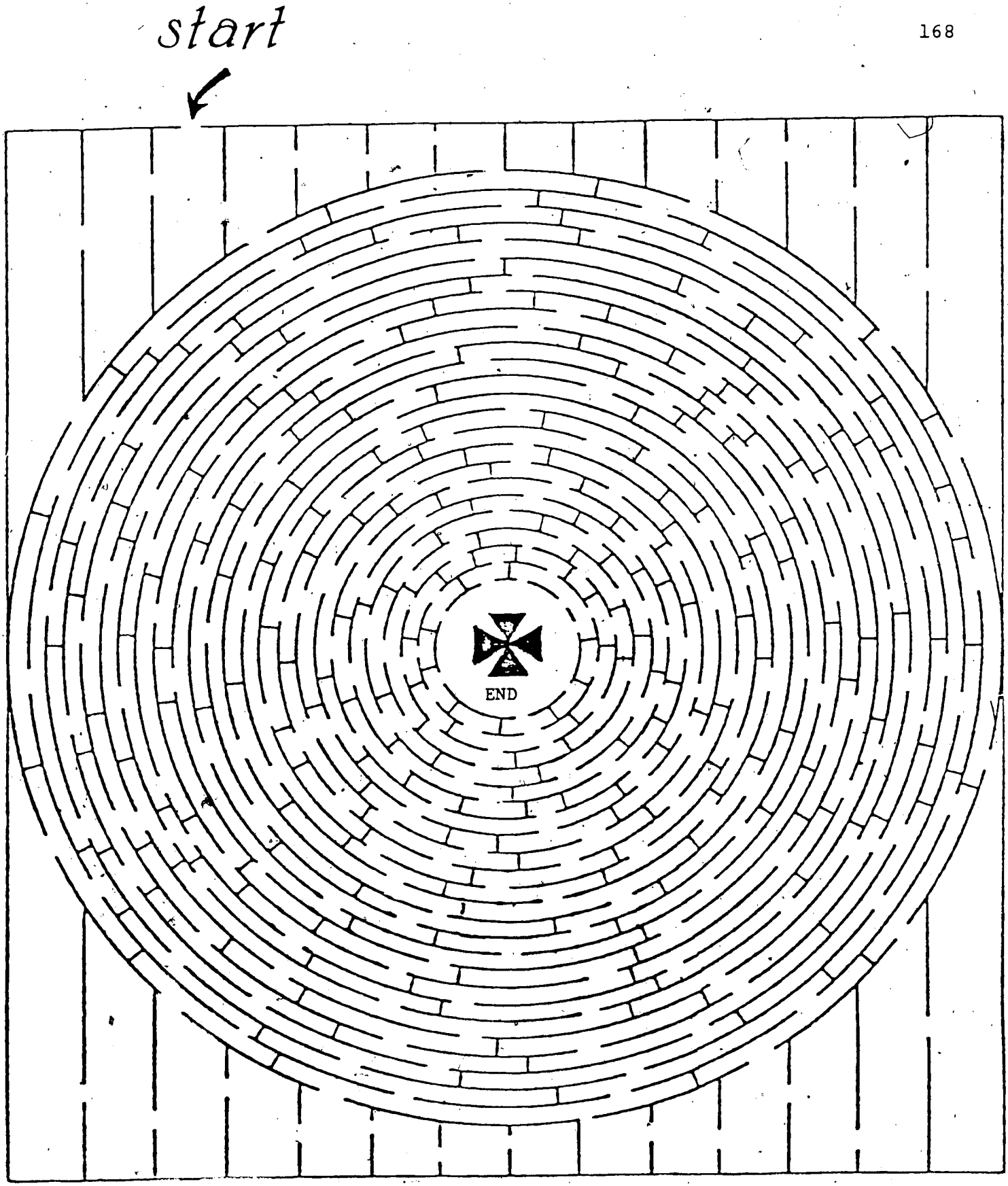
APPENDIX A


start
END

APPENDIX B

Spelling Test

Example Words

A. Picnic. We saw an ant on the picnic table.

B. Drug. Father will go right by the drug store.

C. Received. I received one cent in change.

Test Words

1. Everyone. The sun is good for everyone.
2. Others. There were others in the same place.
3. Flour. Mother makes bread from flour.
4. Bought. John bought a sail boat at the store.
5. Teacher. The teacher was standing right there.
*6. Stamp. Be sure to put a stamp on the envelope.
7. Supper. Our supper is at six o'clock.
*8. Country. Our picnic was out in the country.
9. Handkerchief. I cleaned my hands with my handkerchief.
10. Winter. Some trees are bare in the winter.
*11. Missed. She had missed a whole week of school.
*12. Acorns. The pine tree had many acorns.
13. Supper. My cat wants his supper.
*14. Knitted. Mother knitted a sweater.
*15. Dairy. That farmer has dairy cows.
16. Throne. The queen's throne was beautifully decorated.
*17. Through. They had to walk through the park.
18. Threw. Which boy threw the furthest?

*19. Train. The train travels on the railroad.

20. Prey. Mice are prey for cats.

*21. Hoped. John hoped he would catch a fish.

22. Wore. Susan wore a red bow in her hair.

23. Clover. Clover grows in the meadow.

24. Losing. Our team was losing the game.

*25. Juicy. Mary had a big juicy apple.

*26. Weary. Tom was weary after the test.

27. Car. Mr. Smith had a red car.

*28. Party. We gave a party for the new boy in our class.

29. Steady. There was a steady downpour of rain.

*30. Equal. Both sides had equal numbers of boys and girls.

31. Swamp. There are many kinds of insects in a swamp.

32. Trailer. Mr. Jones towed his trailer with his car.

33. Hobby. Susan collects stamps as a hobby.

*34. Except. All the words are correct except one.

35. Scaled. The climbers scaled the mountain.

36. Measure. Centimeters are a measure of length.

37. Depends. Safety on the highway depends on courtesy.

*38. Difficult. That was a difficult problem.

*39. Clever. Mrs. Patrick has clever dog.

40. Cement. Most sidewalks are made of cement.

*These words were inaudible.

APPENDIX C

Variable Names and Symbols

1. IQ - Intelligence Quotient as measured by the QT.
2. AGE - Age in months.
3. ACH - Total achievement score on the CTBS expressed as percentiles (according to the Canadian norms).
4. VOC - Percentile rank on the Vocabulary sub-test.
5. READ - Percentile rank on the reading sub-test.
6. MC - Percentile rank on the Math Concepts sub-test.
7. MP - Percentile rank on the Math Problems sub-test.
8. GMI - Number of motor interventions in the small group setting (situation 5).
9. GVI - Number of verbal interventions in the small group setting (situation 5).
10. GPT - Total persistence time at interventionist attempts in small group setting (situation 5).
11. SMI - Number of motor interventions during the spelling test (situation 4).
12. SVI - Number of verbal interventions during the spelling test (situation 4).
13. SPT - Total time to complete spelling test (situation 4).
14. AT - Number of words attempted in the spelling test (situation 4).
15. RT - Persistence time attempting to solve the wire puzzle (situation 2).
16. MT - Persistence time attempting to solve maze (situation 1).

17. PICT - Time to complete picture reproduction (situation 3).

18. INCL - Mean time on task during in class observations for the two observation periods (situation 6).