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A construct validity study of the Interpersonal Maturity Level classification system for youth offenders.

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Abstract

A study was performed to investigate the construct validity of the Interpersonal Maturity Level (I-Level) Classification System, presently used widely with juvenile offenders. The theory was validated for the constructs of cognitive complexity, impulse control, and foresight or ability to plan behavior, but not for the constructs of locus of control and internalized guilt. Of the variables studied, cognitive complexity, as measured by Hunt's Paragraph Completion method, was shown to be the best single predictor of I-level classification. A highly significant positive relationship was found between I-level and verbal and non-verbal intelligence ($r = .58$ and $r = .53$, respectively). However, when the effects due to intelligence across groups were controlled, the relationships found significant in the principal tests of the hypotheses continued to be significant. Results were discussed in terms of the measures used, the theoretical implications for I-level as an example of a theory based on the cognitive-developmental approach to socialization, and some practical implications for the use of alternate measures of I-level classification. Suggested directions for further research were specified.

A CONSTRUCT VALIDITY STUDY OF THE INTERPERSONAL
MATURITY LEVEL CLASSIFICATION SYSTEM
FOR YOUTH OFFENDERS

A Dissertation
Presented to
the Faculty of the Graduate School of the
University of Massachusetts

In Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

by
Darlene R. Miller
Clinical Psychology
August, 1972

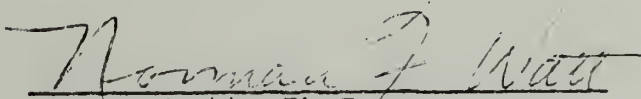
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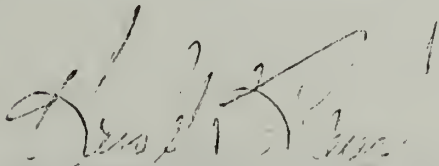
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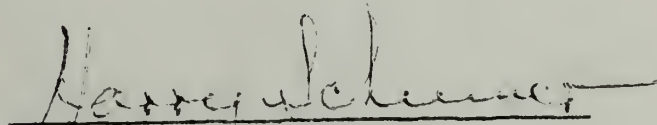
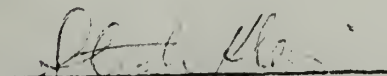
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Chapter I
INTRODUCTION

A method of classification currently in use in clinical practice, particularly with populations of juvenile offenders, is the Interpersonal Maturity Level (I-level) Classification System. As originally formulated by Sullivan, Grant, and Grant (1957), I-level is presented both as a theory of personality development with specific application to delinquent behavior and as a clinical tool. The system is not then solely a model for diagnosing youthful offenders and placing them into various I-level categories, but it is also a method for identifying and selecting youths for clearly prescribed differential modes of treatment, based upon the presumably different needs of children at different levels in the system. Providing a composite of diagnostic categories and procedures, treatment modalities and prescriptions, this conceptualization purports to offer an evolving, practical intervention program for delinquency control and individual growth.

I-level has continued to gain in popularity over the past fifteen years and more recently has been implemented for use in correctional systems in various state divisions of youth services. At the present time, it appears that this approach "stands as a leading candidate to become the dominant one in differential treatment (Gibbons, 1970, p. 23)."

Despite its acclaim and its application in the treatment of literally thousands of juvenile offenders, however, the I-level typology has not yet been subjected to the kind of ongoing critical analysis which is necessary and expected of a new psychosocial theoretical formulation. The theoretical conceptualization on which the I-level typology is based is not explicitly grounded in previously existing theories of personality development, although elements of the work of Piaget, Erikson, G. H. Mead, and H. S. Sullivan are evident. Thus, as is frequently the situation with new theoretical approaches to personality theory, there is no way to systematically assess its validity in terms of existing evidence related to these or other formulations. In this instance, alternative indicators of construct validity must be investigated (Becker and Heyman, 1971).

Research pertaining to the I-level approach to classification, however, has been almost exclusively directed toward assessing the predictive validity of I-level theory, i.e., for predicting the utility of I-level classification as a means of assignment to different modes of treatment. The emphasis, then, has been on outcome studies predicting such factors as lower recidivism rates, psychological test-score changes, etc., as a result of I-level classification and concomitant differential treatment strategies. Questions related to the construct validity of I-level theory have essentially been ignored.

More specifically, the I-level classification system is based upon an intensive clinical interview which focuses

primarily upon interpersonal relationships, and presumes theoretically to encompass certain specific behavioral dispositions. For example, it is presumed that there are significant predictable differences between youths at various levels in terms of their power orientations, cognitive complexity, internalization of standards, impulse control, and foresightfulness, yet very few studies are available which empirically test those theoretical premises. The purpose of the present study, then, is to investigate certain premises and behavioral correlates germane to this classification system, many of which lend themselves readily to measurement, in an attempt to assess the construct validity of I-level theory.

Chapter II

REVIEW OF LITERATURE

The Cognitive-Developmental Approach to Socialization

Theories of psychological development have traditionally placed a heavy emphasis on the process of socialization in the ongoing growth of individuals. While these theories are many and varied, it is possible to characterize them as representing one of three basic approaches to development: maturational, environmental, or cognitive-developmental.

Maturational theories of development, such as those of Gesell (1954) and Lorenz (1965), stress an innate patterning which exists in the organism from birth, and in dealing with developmental changes have emphasized the idea of unfolding maturational stages which guide the development of the child. Environmental or learning theories of development often allow for genetic factors in personality (Hull, 1943) but stress the importance of patterns of events in the environment (stimulus contingencies), and assume that the basic structures of complex responses are reflections of structures existing outside the child, given by the social and physical world (Skinner, 1953). Given these two rather extreme positions, cognitive-developmental theories are "interactional" in that they assume that basic mental structure is the product of the patterning of the interaction between the organism and the environment, rather than

directly reflecting either innate patterns in the organism or patterns of events in the environment.

Each of these three approaches makes different sets of assumptions and involves varying constructs. As stated previously, the present study will be concerned with the constructs central to a specific developmental theory, the Interpersonal Maturity Level Classification system of Sullivan, Grant, and Grant. Since this theory is a theory of socialization in the context of the cognitive-developmental approach, a more detailed explanation of the assumptions underlying this approach to development will be first presented as background and a context for later description of the Interpersonal Maturity system. This description of the cognitive-developmental approach will draw heavily upon Kohlberg (1969b), who has summarized in an effective, coherent way an extensive body of related literature that is not always easy to understand.

The term "cognitive-developmental" refers to a set of assumptions and approaches to research which are common to several theories of social and cognitive development. Representative of these various theories are the formulations of Baldwin (1906), Dewey (1930), Mead (1934), Piaget (1948), Sullivan, Grant, and Grant (1957), Loevinger (1966), and Kohlberg (1969a).

According to Kohlberg (1969b), cognitive-developmental theories share the following basic assumptions:

- 1) Basic development involves basic transformations of cognitive structure. It is not possible to define or

explain these transformations by the parameters of associationistic learning (contiguity, repetition, reinforcement, etc.), but rather they must be explained by parameters of organizational wholes or systems of internal relations.

2) Development of cognitive structure is the result of processes of interaction between the structure of the organism and the structure of the environment. This development, then, is not directly maturational nor is it the direct result of learning (in the sense of a direct shaping of the organism's response to agree with environmental structures).

3) Cognitive structures are always defined as structures of action; that is, the organization of various modes of responding is always an organization of actions upon objects.

4) The direction of development of cognitive structure is toward greater equilibrium in the interaction of the organism and the environment; in other words, of movement toward a greater balance or reciprocity between the action of the organism upon the perceived object or situation and the action of the perceived object upon the organism. Kohlberg notes that this balance is reflected in the underlying stability (conservation) of a cognitive act which is undergoing apparent transformation, with corresponding development then being representative of a broadened system of transformations maintaining such conservation or stability.

These first four assumptions are assumptions which hold for the development of ways of thinking about both physical

and social objects, i.e. for cognitive development in general. However, in order to make more concrete their application to social development, some additional related assumptions pertaining to social-emotional development are necessary. Four further assumptions, then, are:

5) Affective development and functioning on the one hand, and cognitive development and functioning on the other, are not distinct and separate entities. Rather, "affective" and "cognitive" development are parallel, merely representing different contexts and perspectives in defining structural change.

6) Following up on the first assumption regarding the explanation of basic development in terms of parameters of organizational wholes or systems of internal relations, cognitive-developmental theorists (see especially Loevinger, 1966) emphasize the existence of a fundamental unity of personality organization and development known as the ego, or the self. While there are various aspects of social development (moral development, psychosexual development, intellectual development, etc.), these aspects are united by their common reference to a single concept of self in a single social world (Sullivan, Grant, and Grant, 1957). Cognitive-developmental theorists further state that social development is, in essence, the restructuring of the a) concept of self, b) in its relationship to concepts of other people, c) conceived as being in a common social world with social standards (Kohlberg, 1969b). Also, in addition

to the unity of level of social development due to general cognitive development (what is known as the g factor in mental maturity kinds of tests), there is said to be a further unity of development due to a common factor of ego maturity (Loevinger, 1966).

7) Social cognition always involves role-taking; in other words, an awareness that the other person is in some way similar to the self, and that the other knows or is responsive to the self in a system where expectations are complementary. In this sense developmental changes in the social self reflect parallel changes in conceptions of the social world.

8) The direction of social or ego development is also movement toward an equilibrium or reciprocity (as in assumption number four) between the self's actions and those of others toward the self (e.g., as in principles of justice which are conceived in terms of reciprocity or equality, or relationships of "love," i.e., reciprocal intimacy).

Some definitions and elaborations are necessary at this point. As noted, cognitive-developmental theories presuppose distinctions between behavior changes or learning in general and changes in mental structure. Structure, in this sense, refers to the general characteristics of shape, pattern, or organization of response rather than to the rate or intensity of response or its pairing with particular stimuli. Cognitive structure refers to rules for processing information or for connecting (integrating in Sullivan, Grant, and Grant's

system) experienced events. Cognition (as most clearly evident in thinking) means putting things together or relating events, and this connecting or integrating is an active connecting process, not a passive connecting of events through external association and repetition. This means, to a large extent, that the process of relating particular events depends upon prior general modes of relating developed by the organism. Cognitive theorists term the most general modes of relating objects "categories of experience" which include the relations of causality, substantiality, space, time, quantity and logic (Kohlberg, 1969b).

To back up a little, one of the basic cognitive-developmental assumptions (number two, above) is that mental structure is the result of an interaction between certain organismic structuring tendencies and the structure of the outside world. This interaction of organism and environment leads to the concept of cognitive stages. In other words, this interaction leads to cognitive stages which represent the transformations of simple early cognitive structures as these are applied to (or assimilate) the external world, and as they are accomodated to or restructured by the external world in the course of being applied to it. And actually the core of the cognitive-developmental position is this tenet of cognitive stages.

Piaget (1960) has outlined the following general characteristics of cognitive stages (adapted from Kohlberg, 1969b):

1. Stages imply distinct or qualitative differences in persons' modes of thinking or of solving the same problems at different ages.

2. These different modes of thought form an invariant sequence, order or succession in individual development. It is said, for example, that cultural and environmental factors or innate capabilities may make one child or group of children reach a given level of development at a much earlier point of time than another child. All children, however, should still go through the same order of steps or levels, regardless of environmental teaching or lack of teaching. In other words, while cultural factors may speed up, slow down, or stop development, they do not change its sequence. Piaget states that there is an inner logic that determines this sequence, and continues by claiming that in determining a person's current behavior, this inner logic of development is as important as his history or his heredity or his environment. Jane Loevinger agrees with Piaget and adds that the inner logic of development becomes a compelling conviction to those working in the area: "Because there is an inner logic--one not yet full verbalized--experienced, intuitive clinicians usually grasp the schema quickly (Loevinger, 1966, p. 201)."

3. Each of these different and sequential modes of thought forms a "structured whole." A given stage-response on a task is not just representative of a specific response determined by knowledge and familiarity with that task or even with tasks similar to it. Instead it represents an underlying thought-organization, e.g., "the level of concrete operations," which determines responses to tasks which are not obviously similar. According to Piaget, at the stage of concrete operations, the child has a general tendency to believe that a physical object conserves its properties on various physical dimensions in spite of apparent perceptual changes. Piaget and other cognitive-developmental theorists insist that this tendency is structural; it is not a specific belief about a specific object.

4. Cognitive stages are hierarchial integrations, i.e., stages form an order of increasingly differentiated and integrated structures to fulfill a common function, maintenance of an equilibrium between the organism and the environment. Higher stages re-integrate the structures found at lower stages. For example, formal operational thought in the Piagetian sense includes all the structural features of concrete operational thought but at a new level of organization. Concrete operational thought does not disappear when

formal thought develops, but rather continues to be used in concrete situations where it is adequate or when attempts at solution by formal thought have not worked. However, as Kohlberg points out, there is a hierarchical preference within each individual; in other words, a disposition to prefer to solve a problem at the highest level available to her or him.

One further point before moving on to the next section which may be helpful in clarifying the nature of the cognitive-developmental approach, is that this approach is not a theory about the process by which all behavior change occurs, as, for instance, "learning theories" are. Rather, it is a program of analysis. As Kohlberg notes, "some behavior changes are 'structural' and 'directed' as evidenced by proceeding through sequential stages, while other behavior changes are not (Kohlberg, 1969 b, p. 360)." In other words, behavior changes which appear to be progressive and irreversible require a different kind of analysis than do behavior changes which are reversible and situationally specific in nature. It is to these kinds of irreversible changes that I-level theory addresses itself.

The Interpersonal Maturity Level (I-level)
Classification System

An example of a cognitive-developmental approach to socialization is the Interpersonal Maturity Level (I-level) Classification System originally presented by Sullivan, Grant, and Grant in 1957. The first application of the theory began in the 1950's with a study of military offenders (Grant and Grant, 1959). A major elaboration of I-level theory occurred in 1960-1961 with the beginnings of the Community Treatment Project (CTP) (Grant, 1961), and the theory has since been revised and expanded during the years of experimentation in the CTP (Warren, 1966). The CTP is a program for treatment of juvenile offenders in the California Youth Authority. While I-level as an approach to treating juvenile offenders has been primarily utilized in the California Youth Authority, the system is currently being implemented by the Division of Youth Services in the State of Colorado, while at the same time Nevada, Utah, Illinois, New York, Wisconsin, and Oregon are making some limited use of the approach.

I-level theory, in its original formulation, described a sequence of personality (or character) integrations in normal personality development. The system focuses upon the ways in which the individual is able to see himself and the world, and the ways he is able to interpret what is happening between himself and others, as well as among others. According to the theory, seven successive stages of interpersonal maturity characterize psychological

development, ranging from the least mature (which resembles the interpersonal reactions of a newborn infant), to an ideal of social maturity which it is said is seldom or never reached in our present culture (Warren, 1970). Each of the seven stages, or levels, is defined by a crucial interpersonal problem which must be solved before further progress toward maturity can occur. All persons do not necessarily work their way through each stage, but may possibly become fixated at a particular level (Warren, 1969). It is stressed that interpersonal development is viewed as a continuum. It should be noted here that stages of development are the primary emphasis of this theory and that, in line with the cognitive-developmental approach, they are purported to be invariant in sequence and hierarchical in terms of integration.

In order to explain I-level theory in a more comprehensive way, the concept of the "core structure of personality" will first be described, followed by a description of the primary levels of integration or interpersonal maturity that make up the I-level system of development.

In describing the cognitive-developmental approach, it was noted that cognitive theorists label the most general modes of relating as "categories of experience." In the same way, a premise basic to I-level theory is that the human organism tends to break experience into its constituent elements to provide reference points in adjusting to the complex stimulus structure of the external world (Sullivan, Grant, and Grant, 1957). In line with the

interactional approach to cognitive development, it is said that these reference points are not isolated from one another, but rather are merged in a basic, central reference scheme or cognitive world, in which the experienced world of the person is integrated with, and modified by, personal needs and expectations. Furthermore, the nature and quality of perception and experience influence the development of expectations and hypotheses about reference points and thereby determine the behavioral consequences of experience. Sullivan, Grant, and Grant continue:

Over a period of time a relatively consistent set of expectations and attitudes is established as a kind of interpreting and working philosophy of life. It is this nexus of gradually expanding experience, expectations, hypotheses, and perceptions which makes up the core of personality. Communication and social interaction are crucial determinants in the development of this core, helping to expand and elaborate the basic potential with which a person is born (Sullivan, Grant, and Grant, 1957, p. 373).

In the same way that Kohlberg identified a basic underlying stability to cognitive acts which were moving toward greater equilibrium in the interaction of the organism and the environment, so I-level theory posits a similar stability as complex patterns of organization are developed. According to the theory, in the normal course of events the individual not only becomes more differentiated as newer and more complex patterns of organization are developed, but since new stimuli tend to be assimilated in such a way as to require the least amount of cognitive reorganization, the person also tends to become relatively

more simplified and integrated. For Sullivan, Grant, and Grant, then, it follows that the content of the core of personality cannot be considered to be stable; however, the core can reasonably be viewed as an integration, as a "set of principles about which a variety of content can be organized." In this sense, the theorists are hypothesizing a basic consistency and stability in regard to the principles of organization.

A good synthesis of the way in which I-level theory views the developmental process is found in the following quote:

The normal pattern of emotional-social development follows a trend toward increasing involvement with people, objects, and social institutions. These involvements give rise to new needs, demands, and situations. Inherent in many of these new situations are problems of perceptual discrimination with regard to the relationships existing between the self and the external environment. As these discriminations are made and assimilated, a cognitive restructuring of experience and expectancy takes place. A new reference scheme is then developed; a new level of integration is achieved. However, the potentiality for change and the direction, intensity, and character of reorganization are determined in part by the characteristics of the prevailing organization. The foundation for subsequent integrations is laid in preceding levels; the synthesis and integration of one set of stimuli and problems are essential to the perception of the next. Each new level of integration may be regarded as the psychological analogue of an increasingly efficient optical lens. The more advanced the sequel of integrations, the less the likelihood of perceptual distortion. The person can see himself and the world more accurately and can operate more effectively (Sullivan, Grant, and Grant, 1957, p. 375).

As noted previously, I-level diagnosis has been utilized almost exclusively with an adolescent delinquent population.

Within this population, the range of levels found is from Maturity Level 2 (Integration Level 2, or I-2) to Maturity Level 5 (I-5). Level 5, however, is infrequently represented in the adolescent delinquent population (approximately 2 per cent in the California Youth Authority). Since Levels 2, 3, and 4 represent the bulk of juvenile offenders, the present discussion will limit itself to descriptions of some of the constructs germane to these levels of interpersonal maturity development. Table 1 is presented as a schematic representation of some of the basic premises or constructs which pertain to Levels 2, 3, and 4.

The major instrument utilized in arriving at an I-level diagnosis is a semi-structured interview of one to one-and-a-half hours in length. The two basic goals of the interview are to obtain, in as pure a form as possible 1) the interviewee's perception of the world--his view of himself, of others, and of relationships among these perceptions (i.e., his Interpersonal Maturity Level) and 2) the interviewee's way of responding to his perceptions of the world--his typical patterns of adjustment (i.e., subtype within Interpersonal Maturity Level.. It should be noted here that nine such subtypes have been identified within the delinquent population; however, the present study is concerned only with the diagnosis and validity of levels within this system.)

The interview is set up to loosely follow a pre-determined guideline of content areas to be covered in the

Table 1

I-LEVEL SCHEMA (LEVELS 2, 3, and 4)

CONSTRUCT: COGNITIVE STYLE (COMPLEXITY)

- LEVEL 2: Stereotypy; conceptual confusion; very concrete thinking; anarchic in social responses; little ability to differentiate among people; when asked to describe parents may say, "Parents are my mother and father" or "Parents are Mr. and Mrs. Johnson."
- LEVEL 3: Conceptual simplicity; stereotypes; cliches; has not yet distinguished self from learned, impersonal "rule-book" standards; differentiates among people in superficial way; when asked to describe parents may say, "Parents are nice. Mine let me stay out late"; describes people in terms of physical appearance and what they do.
- LEVEL 4: Conceptual complexity with the idea of patterning; capable of abstract reasoning; ability to differentiate among people in terms of personal, inner meanings for their behavior; describes people in terms of inner dynamics and who they are (as opposed to what they do); may say "Parents have a rough time of it. They try to do the right things but often their kids don't understand."

CONSTRUCT: INTERNALIZATION OF STANDARDS (VALUES)

- LEVEL 2: An action is bad because it is punished; fears retaliation when commits an act; sees laws or rules as the denying acts of specific individuals rather than as expressions of more generalized ethical and controlling systems; may react to felt denial by taking things which do not belong to him; when asked how he feels when he steals things may say, "I feel good. I needed it."
- LEVEL 3: Rules are obeyed just because they are rules; shame and guilt are situational resulting from breaking rules; no internalized guilt is involved, although

Table 1 (Continued)

superficial protestation of guilt are frequent; absence of rules means no rules; when asked how he feels about stealing may say, "Bad. I almost always get caught."

- LEVEL 4: Self-evaluated standards exist; morality has been internalized; sanction for transgression is internalized guilt; when fails to live up to internalized standards feels guilty and critical of self; when asked about stealing may say, "It's wrong to rip-off people. I know better and I don't know why I did it--maybe for attention."

CONSTRUCT: ORIENTATION TO POWER AND CONTROL

- LEVEL 2: Primarily involved with demands that the world take care of him; sees others solely as "givers" or "deniers" in terms of sources of supply; has no sense that he can be a "generator" of behavior in others, therefore has no feeling of control over what happens to him; completely at the mercy of others.

- LEVEL 3: Seeks external structure in terms of rules and formulae for operation; perceives the world and his part in it on a power dimension; constantly concerned with who has the power at the moment; feels has some limited power to affect what happens to him; typical responses are either to conform to the power or confront it.

- LEVEL 4: Sees life as presenting many choices; does not see self as a pawn of fate, but feels he holds the origin of his own destiny; has internalized a set of standards by which he judges his and others' behavior.

CONSTRUCT: IMPULSE CONTROL AND DELAY OF GRATIFICATION

- LEVEL 2: Control of impulses is lacking or at best undependable; senses he must communicate his desires to others but is baffled when his demands are not immediately gratified; when asked to

Table 1 (Continued)

wait a few minutes will respond with "I want it now!"; may become aggressive when not immediately gratified.

LEVEL 3: Control of impulses better established than at Level 2, although when faced with peer pressure will go along with the crowd; more successful in controlling impulses when with adults; will often get drunk or take drugs and lose control; can postpone gratification if not required to do so for a very long time.

LEVEL 4: Long-term goals and ideals; is able to delay gratification for long periods of time; may say "I'm going to get a college education and then buy that sports car I want"; impulse control is dependable and not as susceptible to peer influence as at Level 3.

CONSTRUCT: TIME PERSPECTIVE (FORESIGHT)

LEVEL 2: "Time-bound," i.e., very much tied to present with little, if any, ability to think in terms of past and future events; concerned only with "here-and-now"; may not remember when asked, "Do you know what we did yesterday?"

LEVEL 3: Less bound to present events than Level 2, however, is not motivated to achieve in a long-range sense, or to plan for the future; demonstrates some limited foresight but in a vague, superficial way, e.g., "Some day I'll probably get married and settle down."

LEVEL 4: Possesses an ability to evaluate past, present, and future influences; motivated to plan the future course of his life; understands that people change over time, e.g., "My mother is different than she used to be before she married my step-father."

interview session. The interviewer begins with the broadest possible question in each content area, and then follows the lead of the interviewee into more specific questions.

Questions are asked in an open-ended manner to avoid providing the interviewee with a ready-made frame of reference. A copy of the suggested I-level interview schedule is presented in Appendix A.

Since the present study involves the question of construct validity in relation to I-level theory and the concepts central to Levels 2, 3, and 4 described above, a brief summary of this specific type of validation procedure seems appropriate.

Construct Validity

The concept of construct validity, as set forth in the APA Technical Recommendations for Psychological Tests in 1954, was proposed for the situation in which " . . . the tester had no definitive criterion measure of the quality with which he is concerned and must use indirect measures to validate the theory (APA, 1954, p. 214)." In other words, this type of validation was developed to assist researchers in circumstances such as the present one, with I-level theory, where an attempt is being made to operationalize a new conceptual system in terms of appropriate criteria or measures. The task of the investigator is to select a measure which is logically and consistently related to the theory so that the results can be interpreted and can lead to future hypotheses within the same theoretical context.

According to Cronbach and Meehl (1955), the ultimate goal of such a validation procedure is to imbed the new construct in a nomological net, an interlocking system of laws which constitutes a theory. They note that:

We do not first 'prove' the theory, and then validate the test, nor conversely. In any probable inductive type of inference from a pattern of observations, we examine the relation between the total network of theory and observations. The system involves propositions relating test to construct, construct to other constructs, and finally relating some of these constructs to observables . . . Traditionally the proposition claiming to interpret the test has been set apart as the hypothesis being tested, but actually the evidence is significant for all parts of the chain. If the prediction is not confirmed, any link in the chain may be wrong (Cronbach and Meehl, 1955, p. 294).

If the theory is unclearly stated, or so presented that no hypotheses are generated, and/or the measure does not clearly relate to the theory, then meaningful research on it cannot be conducted and the essential network of relationships and distinctions cannot be established.

In this approach, a fundamental distinction is made between behavior relevance and behavior equivalence. In other words, if it is impossible to find a criterion measure which is equivalent to the trait or theory being tested, then the investigator can search for other observable behaviors which, while not equivalent to the trait, are nonetheless related to it. For example, if an investigator has a test of the trait "depression," he might be unable to find a criterion which is equivalent to this construct; however, he can make a number of predictions about relevant

behaviors which are based on his theoretical understanding of what is implied by the term "depression." Such predictions might include statements to the effect that those scoring high on his test would show a greater incidence of suicides, sleep disorders, crying behavior, psychiatric hospitalizations, pessimism, etc. While none of these observable behaviors is in and of itself equivalent to depression, the verification of a number of hypotheses such as these would lead to increasing confidence in the investigator's theory and instrument.

In what became a "classic" exchange in the psychological literature, Harold Bechtoldt (1959) took strong issue with the idea of validating tests by means of construct validation. In response to Cronbach and Meehl's (1955) article, he held that construct validity is little more than the renaming of the basic process of theory building, and that it contained the danger not only of introducing undesirable confusion, but more seriously of leading researchers in psychology away from a strict adherence to operational definition which is essential to scientific progress in psychology. Following an eloquent attack, Bechtoldt recommended that "the formulation of construct validity, as presented in the several papers noted in this critique, be eliminated from further consideration as a way of speaking about psychological concepts, laws, and theories (Bechtoldt, 1959, p. 627)."

The debate continued and in 1960 Donald Campbell published a further analysis of construct validation and a critique of Bechtoldt's position in which he denied that construct validation represents the abandonment of operationalism or encourages the reification of traits, as Bechtoldt had argued. Campbell also suggested the need to distinguish two types of construct validity--trait validity and nomological validity. The first of these "is applicable at that level of development still typical of most test development efforts, in which 'theory,' if any, goes no farther than indicating a hypothetical syndrome, trait, or personality dimension. The second type . . . would represent the very important and novel emphasis of Cronbach and Meehl on the possibility of validating tests by using the scores from a test as interpretations of a certain term in a formal theoretical network, and, through this, to generate predictions which would be validating if confirmed when interpreted as still other operations and scores (Campbell, 1960, p. 547)."

The present writer is sympathetic to Campbell's more moderate position and believes that perhaps too much has been made of this controversy. The connotation has been created that construct validity was offered as a new type of validation procedure, when in actuality, as Campbell points out, it is as old as the concept of test validity itself, and "is needed in any inventory of the useful procedures by which tests and theories have been shown to be invalid in the past (Campbell, 1960, p. 548)."

In an extensive critique of the I-level classification system, Becker and Heyman (1971) conclude that due to theoretical problems, methodological inadequacies, and difficulties with reporting, neither the appropriateness of the typology nor the efficacy of treatment based on it have been demonstrated. They point out that "in the absence of competing formulations, extensive human and economic resources are being invested in the diffusion of the (I-level) system into correctional programs in many areas. The highest priority should be given, therefore, to systematic efforts to study and enhance the reliability and construct validity of the typology . . . (Becker and Heyman, 1971, p. 49)." The concept of construct validation as presented by Cronbach and Meehl and Campbell seems appropriate for such studies as are called for by Becker and Heyman, since for I-level theory no a priori defining criterion is available as a perfect measure or defining operation against which to check the theory. Rather, some independent way(s) of getting at "the same" traits as postulated by the theory must be sought.

Intelligence

The relationship of intelligence to personality development has been an issue of importance in numerous psychological studies. Indeed, in a number of research efforts noted by Anderson (1960), it was found that intelligence carried a heavy predictive load in most measures of outcome and emerged as a more significant

factor than the personality measures used. In light of findings such as these it becomes important to briefly review the intelligence literature, and to assess the relationship of intelligence to I-level theory.

The term "intelligence" is one that has long carried many different meanings. Frequently, however, in response to the question "What is intelligence?" the common answer has been "Intelligence is what intelligence tests measure." In an effort to provide a conceptual framework of more complexity and specificity in order to begin to answer this query in a more differentiated way, several divergent points of view and theoretical and empirical generalizations have evolved.

For example, factor analysts studying intelligence have been roughly divided into two camps--those who use factorial methods that allow a general intellectual factor (g) to emerge as the first factor of intelligence, and those who prefer methods which yield a number of independent or primary factors and no large general factor. Guilford (1967) is perhaps the best representative of multiple-factor analysis in the Thurstone tradition. He argues that current definitions of intelligence are too narrow and vague, and that preference for a general intellectual factor over multiple factors is due to a restricted view of the area of intelligence, a view that will hinder progress. As an alternative to theories emphasizing g, Guilford has presented a model called the

"structure of the intellect," a model that is represented spatially as a three-dimensional cube. The three dimensions are broken into four, five and six categories, and therefore yield 120 cells, each of which represents a factor.

In contrast, Vernon (1965) is representative of factor analysts who prefer techniques that yield a large g factor and who build "heirarchical" models. Vernon's model is represented as an inverted tree. At the top is g, the general intellective factor. This factor is followed at a lower level by two major group factors, verbal-educational and spatial-practical-mechanical. Each of these is followed by additional, minor factors such as the creative abilities, verbal fluency, and number factors under verbal-educational, and spatial, psychomotor, and mechanical information factors under spatial-practical-mechanical. Factors high on the tree, then, refer to a wide variety of behaviors, and factors low on the tree to narrower ranges of behavior. And, in fact, Vernon believes that many of Guilford's and Thurstone's factors are of such a low degree of generalizability that they are of no practical utility.

A theory of intelligence which falls somewhere between g and multiple factor analysis is Cattell's theory of fluid and crystallized intelligence (Cattell, 1963; Horn and Cattell, 1966). Cattell has argued that the general intelligence factor (g) is in fact at least two interrelated and cooperative factors. The first is fluid intelligence (G_f), a "general relation-perceiving capacity which operates in

all fields" and is biologically determined; the second is crystallized intelligence (G_c), a "sum of particular relation-perceiving skills acquired in specific fields" and therefore environmentally determined (Cattell, 1957, p. 877). Apparently G_f is conceived as some quality of the nervous system upon which the individual, in his encounters with the environment, builds what Cattell calls "general solution instruments" or "aids." The sum of these "aids" is the factor G_c .

Numerous other approaches to conceptualizing intelligence could be summarized, among these Guttman's (1965) facet theory, Piaget's (1950, 1952) cognitive model, and various information-processing theories, to name a few. However, the theorizing of Hayes (1962) seems more germane to the present discussion of I-level theory, since some similarities between the two theories are apparent.

Hayes (1962) argues that intelligence is nothing more than a collection of learned abilities and that individual differences in intelligence are due solely to experience producing drives (EPDs), which are inherited tendencies to engage in activities conducive to learning. He postulates that intelligence depends not on the average strength of all EPDs, but rather on some complex relationship among them, and that EPDs would probably be found to correspond to preferences for the use of various sense modalities (although they would go beyond this). Hayes believes that simple skills associated with the various sense modalities

(primarily perceptual ones) are, with experience, combined into more complex strategies that can then generate solutions to more complex problems. In other words, Hayes sees EPDs as determinants of certain types of environmental encounters which are significant to the accumulation of specific kinds of abilities, and therefore both heredity and environment are of 100 per cent importance in the organism's developing intellectual functions.

In theorizing on the way in which individuals become increasingly mature in their interpersonal perceptions and relations, Sullivan, Grant, and Grant (1957) also emphasize the fundamental importance of the organism acting upon his environment, and in turn the environment acting upon the organism. This mutual interaction of organism and environment leads to a "nexus of gradually expanding experience, expectations, hypotheses, and perceptions which makes up the core of personality (Sullivan, Grant, and Grant, 1957, p. 373)," and is dependent upon the genetic predispositions the infant brings into the world with him, as well as the stimulation present in the maturing child's environment. Both Hayes and the founders of I-level theory, then, stress the importance of both heredity and environment in their respective formulations.

For many years investigators of the I-level classification system in California have played down the possible relationship between I-level and intelligence, citing

correlations in the low .20's (Palmer, Johns, Neto, Turner, and Pearson, 1968). More recently, however, independent investigative efforts have indicated higher degrees of relationship between I-level and intelligence than previously reported. For instance, Cross and Tracy (1971) found a correlation of .36 between I-level and intelligence, a coefficient quite similar to that reported by Beverly (1965) in another study. While not citing actual coefficients, Molof and Jesness (1972) present data which "shows a high degree of relationship between measured intelligence and I-level (Molof and Jesness, 1972, p. 68)." Werner (1972) presents data which indicate a "moderate" degree of relationship, citing a gamma value of .34. These figures seem reasonable in terms of I-level theory; however, one might not expect to find such strong correlations between these two dimensions as those reported by Zaidel in 1970 (verbal $r = .59$, non-verbal $r = .52$). Zaidel's figures are the highest cited in the literature.

In line with Hayes' and other (e.g., Piaget) theoretical formulations of intelligence, as well as the concepts imbedded in I-level theory, a correlation between I-level and intelligence should not be surprising. As noted by Molof and Jesness, the concepts of perceptual development and cognitive differentiation, and the ability to understand and cope with one's inner and outer worlds should theoretically have in common certain of the attributes measured by tests of intelligence. It also seems reasonable that intelligence

may affect the extent to which persons are able to accurately perceive and effectively react to individual differences in the needs, motives, values, and styles of verbal as well as nonverbal expression of others. Since these latter qualities of interpersonal functioning undoubtedly help determine the nature of interpersonal relations developed by an individual (and perhaps also the extent of growth-conducive social opportunities available to him), at least a moderate correlation between I-level and intelligence would not be unexpected.

The relatively few references to cognitive functioning in the descriptions given of the various I-level categories do suggest differences in intelligence. For example, I-2s are described as having an "undifferentiated view of others" except in terms of whether the others are seen as "givers" or "deniers" and low ability to differentiate is generally considered a characteristic of low intelligence. "Cognitively concrete" is a description given of I-3s, which also suggests a relatively low level of cognitive functioning. The only cognitive description given of I-4s is that they have "potential for considerable insight into meanings, dynamics, cause and effect," which suggests a higher degree of intelligence. These descriptions and accompanying expected increases in intelligence across levels are compatible with the expectations of the cognitive-developmental models described previously.

Zaidel points out that the treatment recommendations for the various I-level groups are consistent with the

notion of differences in intelligence across I-levels. Traditional approaches to psychotherapy, for instance, are not considered appropriate for I-2s and I-3s; rather, role-playing techniques, activity groups, and groups emphasizing the influence of a positive peer culture are recommended. In contrast, the major treatment methods recommended for the large number of I-4s are individual psychotherapy, group therapy, conjoint family therapy, transactional analysis, etc., with an emphasis on the development of insight into conflicts, internal dynamics and feelings, and family problems. This differential use of insight-oriented therapy is consistent with the general clinical finding that traditional psychotherapy requires a fair amount of intelligence, which it is possible that I-2s and I-3s may not have.

The point to be made from this discussion is that while the devotees of I-level classification do not consider intelligence to be an important or even notable diagnostic indicant of the level of interpersonal maturity of a youth, the theory itself and the differential treatment strategies suggested, do in fact point directly to a significant positive relationship between I-level and intelligence.

Chapter III

RATIONALE

As noted in a previous section, since the major concern of research in I-level theory over the past years has been to assess the usefulness of the classification system for the treatment of juvenile offenders, questions related to the construct validity of the underlying theory have essentially remained uninvestigated. Several exceptions to this are three social work master's degree studies, reported by Zaidel (1970), which apparently were too inadequate methodologically to allow any conclusions to be drawn. One other exception is a recent (1970) study by Susan Zaidel in which she addressed herself to the construct validity questions of differences across three I-level groups in awareness of feelings in others, and the relationship of intelligence to I-level classification. Among other findings, her results indicated that verbal fluency regarding people, verbal intelligence, and race were the most important components of I-level, together accounting for approximately 54 per cent of the variance in her study. This type of study is obviously very important and leads to a number of questions regarding the theoretical base of I-level classification.

In regard to the relationship between I-level and intelligence, Loevinger (1966) has reasoned that ego

development is not the same as development of all functions exercised by the ego, and "in particular intellectual development is not a fair measure of ego development, even though exercise of intelligence is an ego function (Loevinger, 1966, p. 195)." While the present writer is sympathetic to this kind of reasoning, it may well be, at least for the present, that intelligence is the best measure available for assessing I-level or ego development. If this indeed is the case (Zaidel found a correlation of .59 between I-level and intelligence as measured by the Raven Progressive Matrices and a separate verbal measure of I.Q.), then perhaps it is not necessary to perform the elaborate, time-consuming interview presently used in arriving at I-level diagnoses. Rather, it may be sufficient to use a good measure of intelligence alone or in combination with one or two other indices proven to be related significantly to I-level. Adapting this procedure for assessing I-level need not necessarily imply that I-level theory is not valid or useful. Indeed, the present writer is of the opinion that the usefulness of I-level classification has been satisfactorily demonstrated in terms of its effectiveness for the management and differential treatment of juvenile offenders. Questions remain, however, as to the relationship between I-level and intelligence as well as to the importance of the constructs reputedly central to I-level (see Table 1). It seems necessary to evaluate those constructs in relation to the degree to which they in fact

do differentiate persons at various levels of development within this system. Referring to Table 1, then, the following assumptions of I-level theory are considered for investigation. It should be noted that for ease of reference these statements are labeled as hypotheses; however, for this kind of study a more proper and accurate procedure would be to describe empirical tests of relationships between measures of the various constructs.

Hypothesis 1: Youths at higher levels of inter-
personal maturity are more internally oriented
in relation to control of their lives, i.e.,
they are more inclined to interpret important
reinforcements as consequences of their own
behavior, rather than due to extrinsic factors
in the environment. Youths at Level 2 in

development feel they have no control at all over their own destiny and that they are completely at the mercy of their environment. At Level 3, youths feel they have some limited power to affect what happens to them, although they are still concerned with who has the power at any given moment, and in relating to that power. Level 4 youths give evidence of a greater internal orientation than youths at lower levels due to their feeling that they can control their own destiny, and because of the existence of an internalized value system.

Hypothesis 2: Youths at higher levels of inter-
personal maturity are more cognitively complex
than those at lower levels of development.

At Level 2, youths demonstrate very concrete thinking, a tendency toward stereotypy, and little ability to differentiate between persons and objects in the environment.

Youths at Level 3 give evidence of conceptual simplicity and are capable of making superficial differentiations. Level 4 youths demonstrate conceptual complexity with the idea that there is a patterning and organization of responses, and are more capable of abstract reasoning than youths at lower levels on the continuum.

Hypothesis 3: Youths at higher levels of inter-
personal maturity have internalized their
own standards and values and therefore
experience greater internalized guilt. Youths at Level 2 have little, if any conception of right and wrong and for them an action is bad because it is punished. Level 3 youths obey rules just because they are the rules, and the guilt they experience is situational, resulting from breaking rules. Youths integrated at Level 4 have self-evaluated standards, an internalized morality, and experience more intense feelings of guilt when

they do not live up to their self-imposed standards.

Hypothesis 4: Youths at higher levels of interpersonal maturity have greater impulse control than youths at lower levels of development.

Control of impulses is said to be lacking or at best undependable in persons at Level 2. Level 3 youths' impulse control is better established, yet still quite susceptible to peer influence. For youths at Level 4, impulse control is dependable and less susceptible to peer persuasion than at Level 3.

Hypothesis 5: Youths at higher levels of interpersonal maturity are more able to delay gratification than youths at lower levels.

Level 2 youths are basically oriented toward having immediate gratification of needs and are not able to delay gratification for even very brief periods of time. Youths at Level 3 can postpone gratification if not required to do so very long. At Level 4, long-term goals and ideals are expressed and youths at this level are able to delay reward for extended periods of time.

Hypothesis 6: Youths at higher levels of interpersonal maturity possess greater ability to

exercise foresight and plan behavior. Youths at Level 2 are "time-bound" with little awareness of past and future events. Level 3 youths have the ability to exercise foresight to a limited extent, but are not motivated to achieve in a long-range sense, or to plan for the future. Youths at Level 4 in development possess an ability to evaluate past, present, and future influence, are motivated to plan for the future, and demonstrate greater foresightfulness and planned behavior than youths at lower levels.

Hypotheses 7 and 8: Following Zaidel, the prediction is made that there is a significant positive relationship between I-level diagnosis and verbal and non-verbal intelligence. An extension of these related hypotheses may be viewed as the Devil's Advocate hypothesis of the present study: When systematic group differences in intelligence are controlled by matching or statistical procedures, all of the differences predicted above disappear. As noted above, confirmation of this and at least some other hypotheses would imply that there is some utility to I-level assessments, but that simple intelligence tests would perhaps have equivalent utility as the procedures for classification.

Chapter IV

METHOD

Subjects

The sample consisted of 138 male and female youth offenders ranging in age from 13 to 21 years, the majority of whom were incarcerated in two training schools which serve the courts of the State of Colorado for confinement of juvenile offenders. Subjects were divided into three groups according to their I-level classification: I-2, I-3, and I-4. Due to the scarcity of I-2s in the correctional population (less than 5 per cent as reported in the California Youth Authority), and a preponderance of I-3s and I-4s, the three groups did not contain equal numbers of subjects. Since only six I-2s were available from the Colorado population, thirty-five additional subjects were procured from the Northern Reception Center and Clinic in Sacramento, California, nine of whom were identified as I-2s. These nine additional California youths were added to the Colorado sample of I-2s, as well as 13 California I-3s and 13 I-4s, resulting in the following number of subjects in each group: 15 I-2s, 55 I-3s, and 68 I-4s. Approximately 35 per cent of the total number of subjects were female, all of whom were from the Colorado sample.

Measures

I-level diagnosis. I-level diagnoses are currently available for a majority of the delinquent correctional population in Colorado. These diagnoses are established by raters who have been thoroughly trained (many by Warren and her staff in a five-week training course in Sacramento) in I-level theory, interviewing, and diagnosis, and whose ratings have been validated against criterion tapes in California. Described by Warren (1966), interviewers trained in I-level diagnosis conduct a tape-recorded one to one-and-a-half hour semi-structured interview designed to elicit the interviewee's characteristic level of perceptual differentiation as well as his typical reactions or response sets to his perceptions (see Appendix A). The interviewer determines the diagnosis followed by a second trained rater listening to the taped interview and also making a diagnosis. Molof (1969) reports an average of 82 percent agreement in terms of level diagnosis between first and second raters using the Warren interview.

Intelligence. Verbal and non-verbal (performance) scores from the Wechsler Intelligence Scale for Children (WISC) (Wechsler, 1949) were available for most of the youths in the study. When WISC scores were not available, verbal and non-verbal scores from the Lorge-Thorndike were used.

Internal-external focus. Subjects were administered the Rotter Internal-External Focus of Control Scale (Rotter, 1966). Locus of control refers to the disposition to perceive one's reinforcements as consequences of one's

own behavior or as due to extrinsic factors. Those persons who believe that they exercise some control over their destinies are considered to be internally oriented and controlled. Externals believe that their reinforcements are controlled by luck, chance, fate, or powerful others. A wide variety of construct validity is available for this measure. It has been used rather extensively and research findings indicate that it has proved to be useful in the prediction of a variety of behaviors. A bibliography of the locus of control literature through 1969 cites over 325 references, indicating a considerable amount of continuing interest in this construct (Throop and MacDonald, 1971).

In addition to the I-E scale administered to the subjects, two or three people who knew respective subjects fairly well (e.g., house parents, cottage counselors) were asked to fill out brief informal rating scales with behavioral descriptions of the concepts central to this internal-external dimension. These scales are listed in Appendix B.

Cognitive complexity. David Hunt (1970) has devised a method for assessing the conceptual level or cognitive complexity of adolescents from 12 to 18 years of age. To index conceptual level Hunt writes that "we have used a method that requires the person to do some 'conceptual work' by reacting to a stimulus likely to require some 'cognitive work' in his response (p. 71)." Specifically, Hunt's

Paragraph Completion Method consists of six topics, to each of which the subject responds with three or four sentences indicating his own personal reactions to the topics. The topics are: "What I think about rules . . ."; "When I am criticized . . ."; "What I think about parents . . ."; "When someone disagrees with me . . ."; "When I am not sure . . ."; and "When I am told what to do . . .". Each of the six responses is a unit to be coded according to the scoring manual (Hunt, Lapin, Liberman, McManus, Post, Sabalis, Sweet, and Victor, 1968). A person's index of cognitive complexity is calculated as a composite of his six scores, generally using the average of the highest three scores on the test. With trained raters, Hunt reports inter-rater reliability to be .80 to .85. Several studies are cited as evidence of the construct validity of this approach (e.g., Hunt and Dopyera, 1966; Hunt, Hardt, and Victor, 1968; McLachlan, 1969), and this plus the fact that the measure was devised to be used with adolescents, as well as the apparent similarity between Hunt's stages of cognitive complexity and the I-level stages being investigated, indicate Hunt's instrument is an appropriate measure for determining cognitive complexity.

An additional measure of cognitive complexity was several informal rating scales containing descriptions of concepts involved in the dimension of conceptual complexity. These were administered to people who were in contact with the respective subjects and who knew the youths fairly well. These scales are presented in Appendix C.

Internalization of guilt. Mosher (Mosher, 1966; Ruma and Mosher, 1967) has developed a scale which purports to measure a person's generalized expectancy for self-mediated punishment for violating or anticipating the violation of internalized standards of proper behavior. The Mosher Guilt Scale (MGS) was originally developed as a sentence-completion measure of guilt using referents suggested by the psychoanalytic conception of guilt to score the completions. From the Mosher Incomplete Sentence Test, a forced-choice and true-false measure of three aspects of guilt were constructed (1966). The forced-choice alternatives (79 items) were subjected to an internal consistency item analysis and matched for social desirability in college males. A multitrait-multimethod matrix analysis of the three measures of the three aspects of guilt (sex guilt, hostile guilt, and morality-conscience guilt) revealed that the forced-choice version of the MGS has a high split-half reliability (in the .90's) and provided evidence of convergent and discriminant validity (Mosher, 1966). Ruma and Mosher (1967) later showed a significant correlation ($p < .01$) between level of guilt (as measured by the MGS) and level of moral judgment (as measured by Kohlberg's method of assessing the developmental level of moral judgment) in delinquent boys. This reported correlation with a construct embedded in a developmental model and with a delinquent population indicates the MGS is an appropriate measure for internalized guilt in the present study.

An additional measure of guilt which was utilized is several rating scales, administered to house parents, case workers, etc. who were familiar with the subjects, which described various aspects of the dimension of internalized guilt. These scales are given in Appendix D.

Impulse control, foresight, and ability to plan. The non-verbal Porteus Maze tests (Porteus, 1965) have been used in several studies (Erikson and Roberts, 1971; Doctor and Winder, 1954; Fooks and Thomas, 1957) to differentiate between various groups differing in impulsiveness, foresight, and planfulness. This test provides two scores: a Test Quotient (TQ) which appears to measure non-verbal foresight and planning ability, and a Qualitative (Q) score which is a measure of impulse control and has been demonstrated to differentiate between groups on this dimension. Erikson and Robert (1971) found a correlation of .03 between TQ and intelligence, while the correlation between Q and intelligence was .00, both obviously not significantly different from zero. In their study, TQ and Q correlated .31 ($p < .05$). Porteus (1965) noted that delinquents who were given the mazes seemed to enjoy taking the test, and he cited numerous studies using his test with delinquent populations. In fact Porteus devised the Q score to take account of the frequency of errors in execution he found among various delinquent and ~~nondelinquent~~ nondelinquent populations. While Porteus considers the concepts of impulse control and foresight in his book, he does not claim that his

test measures these abilities, although he does cite studies, other than his own, which indicate the mazes are sensitive to these factors (e.g., Kainer, 1965). These considerations, coupled with later investigative efforts using the Porteus Maze Tests (e.g., Erikson and Roberts, 1971), suggest it is an appropriate measure to be used with delinquents and in differentiating groups on these two dimensions.

Delay of gratification. The measure used to determine ability to postpone gratification was a choice-of-prizes test made popular by N. T. Feather (1959). Subjects were informed at the beginning of the first testing session that they would each receive \$2.00 for participation in the experiment. At the end of the first session, however, each subject was individually presented a card with the following options:

	<u>Alternative 1</u>	<u>Alternative 2</u>
1st week	\$.75	\$.25
2nd week	<u>\$1.25</u>	<u>\$2.00</u>
Total	\$2.00	\$2.25

Those subjects who decided upon the second alternative were considered to delay gratification. This is a simple measure yet effective in its differentiation of those subjects who are able to control their impulses and those who demand immediate gratification.

Procedure

Rotter's I-E scale, the Mosher Guilt Scale, and Hunt's sentence completion measure of cognitive complexity were

administered to groups of 10 to 15 subjects at a time. Administration of these three measures averaged about one-and-one-half hours per group. Administration of Feather's test was carried out individually at the end of this first session.¹ One week later, individual sessions were arranged with each subject for administration of the Porteus Maze Tests and the completion of payment for the Feather choice--of-prizes task. Instructions were the standard ones accompanying the five measures. (See Appendixes F through K for measures and instructions.) Subjects, at the beginning of the first testing session, were offered \$2.00 for participating in the experiment. The Experimenter asked the subjects to be as honest as possible and assured them of the confidentiality of their responses to the various tests (See Appendix F).

The informal rating scales measuring the observations of house parents, cottage counselors, etc. of each of the subjects on the dimensions of internal-external locus of control, cognitive complexity, and internalization of guilt (plus one additional scale which was used in order to assess possible contamination due to the observer's fondness or dislike for individual subjects, see Appendix E) were combined into one rating form and administered to two or three of these observers for each subject. The administra-

¹ Due to restrictions concerning the payment of money to youths in the Northern Reception Center and Clinic, it was not possible to administer the Feather delay of gratification measure to the California subjects.

tion took place as close as possible to the time when subjects were administered the first phase of the experimental tasks. Observers filling out rating sheets were assured of the confidentiality of their responses.

Treatment of Data

A preliminary analysis was performed to assess the comparability of the data from the California and Colorado subjects. A state-by-I-level analysis of variance for each dependent variable was performed and in no case was the state-by-I-level interaction term significant, indicating that the two samples could justifiably be combined for further analysis.

Several previous studies had indicated that age (Molof, 1969) and ethnic background (Zaidel, 1970; Cross and Tracy, 1971) were important correlates of I-level. In addition, the present study included both male and female subjects, providing an opportunity for an analysis of possible sex differences and I-level which had not been examined to any significant degree in other studies. To examine the possible effects of age, sex, and ethnic background on the present I-level data, an initial correlation matrix was derived for the independent and dependent measures. A subsequent analysis was then performed to partial out the differences due to age, sex, and ethnic background. The partial correlation matrix revealed a slight reduction of some of the higher original correlations, and a slight raise of some of the lower ones, but had no substantial effect on the p values associated

with the tests of the principal hypotheses. Appendix L presents a summary of the correlation coefficients for the original and partialled data. The tests of the principal hypotheses in the results section were performed by analysis of variance since the correlational analyses included some scores whose conformance to parametric assumptions is questionable. Nevertheless, the partial correlation matrix was sufficiently convincing to make it unnecessary to covary out the effects of these differences due to sex, age, and ethnic background in the analyses of variance in the tests of the principal hypotheses.

Previous studies had also indicated a significant correlation between I-level and socio-economic status (SES). Using a modified version of Hollingshead and Redlich's Index of Social Position (1958), an attempt was made to collect SES data for each subject. Unfortunately, this effort proved successful for slightly less than half of the total number of subjects, and consequently the SES data could not be included for formal analysis. A preliminary one-way analysis of variance, however, indicated that, at least for the subjects with SES data available, SES was not an important influence on I-level classification ($F = 0.31$, 2 and 54 df, ns).

A description of the analyses performed to test the eight principal hypotheses, as well as subsequent analyses of the data, is presented immediately below.

Chapter V

RESULTS

In the first part of this section, analyses of variance will be presented in order to test the eight principal hypotheses advanced in Chapter III. For three of the hypotheses, alternative measures were available: a questionnaire measure and a behavioral rating. The initial tests of the hypotheses, then, consist of eleven analyses of variance. The order of presentation of the hypotheses has no particular significance, i.e., as a construct, internal locus of control is not necessarily more central to I-level theory than, for instance, impulse control.

The second part of the section will consist of analyses to further delineate and clarify the results shown from the tests of the principal hypotheses. These will consist of a multitrait-multimethod matrix analysis of the duplicate measures, a factor analysis of the dependent measures, a discriminant function analysis of the dependent measures, and a comparative analysis of alternative measures to I-level classification.

Tests of Principal Hypotheses

The first hypothesis stated that youths at higher levels of interpersonal maturity are more internally oriented in relation to control of their lives, i.e., they are more

inclined to interpret important reinforcements as consequences of their own behavior rather than due to extrinsic factors in the environment. In addition to the Rotter questionnaire measure of locus of control (I-E Scale), behavioral ratings were obtained for each subject on the internal-external dimension. Table 2 presents the means and analyses of variance of locus of control on three I-level groups for both measures.

There appears to be some tendency for more mature (higher I-level) youths to be more internally oriented, although the questionnaire results are far less convincing than the behavioral ratings.

The second hypothesis stated that youths at higher levels of interpersonal maturity are more cognitively complex than those at lower levels of development. Table 3 presents the means and analysis of variance for three I-level groups on Hunt's paragraph completion measure of cognitive complexity (CC), as well as for the behavioral ratings obtained for each subject on this construct.

Both of these analyses strongly confirm the second hypothesis of greater cognitive complexity among youths at higher levels of interpersonal maturity.

Hypothesis 3 claimed that youths at higher levels of interpersonal maturity have internalized their own standards and values and therefore experience greater internalized guilt than youths at lower levels. Table 4 presents means and analysis of variance for Mosher's Guilt Scale (MGS) on

Table 2
 MEANS AND ANALYSES OF VARIANCE OF LOCUS OF CONTROL
 FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Rotter I-E Scale</u>		<u>Behavioral Rating</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 15)	11.80	2.51	13.69	2.62
I-3 (n = 55)	10.89	3.36	12.13	2.58
I-4 (n = 68)	10.06	4.08	10.62	2.34
F-test (2, 135 df)	F = 1.68, ns		F = 11.67, p < .001	

Note.— A high score indicates external locus of control.

Table 3
 MEANS AND ANALYSES OF VARIANCE OF COGNITIVE COMPLEXITY
 FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Hunt CC Measure</u>		<u>Behavioral Rating</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 15)	0.55	0.34	9.53	2.35
I-3 (n = 55)	1.07	0.27	10.75	3.06
I-4 (n = 68)	1.42	0.49	12.96	2.50
F-test (2, 135 df)	F = 32.23, p < .001		F = 15.08, p < .001	

Note. —A high score indicates greater cognitive complexity.

Table 4
 MEANS AND ANALYSES OF VARIANCE OF INTERNALIZED GUILT
 FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Mosher Guilt Scale</u>		<u>Behavioral Rating</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 15)	-4.53	15.60	10.49	2.35
I-3 (n = 55)	0.95	15.43	11.65	1.88
I-4 (n = 68)	0.09	19.17	12.38	1.67
F-test (2, 135 df)	F = 0.58, ns		F = 7.10, p < .01	

Note.— A high score indicates more internalized guilt.

three I-level groups, and for the behavioral ratings obtained as an alternative measure of internalized guilt.

As measured by the Mosher questionnaire, internalized guilt is clearly not related to I-level. The groups do differ reliably on the behavioral rating of this variable, but subsequent analysis will show that this result must be treated with some skepticism. It is concluded that the I-level groups do not differ on internalized guilt.

A fourth hypothesis stated that youths at higher levels of interpersonal maturity have greater impulse control than youths at lower levels of development. Table 5 presents means and analysis of variance for the performance of three I-level groups on the Porteus Mazes (Q-score), a measure of impulse control.

The large F-ratio in this analysis indicates a highly significant relationship between impulse control and levels of interpersonal maturity, which confirms the original hypothesis.

The fifth hypothesis stated that youths at higher levels of interpersonal maturity are more able to delay gratification than youths at lower levels. Table 6 presents means and analysis of variance for Feather's Choice-of-Prizes Test on I-levels 2, 3, and 4.

The overall analysis of variance fails to confirm the hypothesis, although the I-2 group differs significantly ($p < .001$) from both other groups. This is in line with the prediction, but this result must be regarded with some

Table 5
 MEANS AND ANALYSIS OF VARIANCE OF IMPULSE CONTROL
 (PORTEUS Q SCORE) FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 15)	34.27	16.86
I-3 (n = 55)	23.16	13.64
I-4 (n = 68)	17.63	10.13

Note.—A low score indicates more impulse control.

The F-ratio between groups was 11.35,

2, 135 df, $p < .001$.

Table 6

MEANS AND ANALYSIS OF VARIANCE OF DELAY OF GRATIFICATION
(FEATHER CHOICE-OF-PRIZES TEST) FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 6)	1.17	0.37
I-3 (n = 42)	1.60	0.49
I-4 (n = 55)	1.62	0.49

Note.— A high score indicates greater delay of gratification.

The F-ratio between groups was 2.33, 2, 100 df, ns.

reservation because of the very small sample in the I-2 group (6).

A sixth hypothesis posited that youths at higher levels of interpersonal maturity possess greater ability to exercise foresight and plan behavior. Table 7 presents means and analysis of variance for the performance of three I-level groups on the Porteus Mazes Test (TQ score), a behavioral measure of foresight and planning ability.

The significant relationship between levels of interpersonal maturity and foresight confirms the hypothesis that youths at higher levels of development demonstrate a greater ability to plan behavior.

Two final hypotheses were addressed to the relationship of I-level classification and intelligence. These predicted a significant positive relationship between I-level and verbal intelligence, on the one hand, and non-verbal (performance) intelligence on the other. Table 8 presents the means and analyses of variance for verbal and non-verbal (performance) I.Q., as measured by the Wechsler Intelligence Scale for Children (WISC), for I-levels 2, 3, and 4.

The large F-ratio in both of these analyses indicates a highly significant positive relationship between I-level diagnosis and both verbal and non-verbal (performance) intelligence, as measured by the WISC.

Multitrait-Multimethod Matrix Analysis of Duplicate Measures

Due to the nature of the results bearing on the constructs of locus of control and internalized guilt, in which the

Table 7
 MEANS AND ANALYSIS OF VARIANCE OF FORESIGHT
 (PORTEUS TQ SCORE) FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 15)	104.80	16.90
I-3 (n = 55)	112.24	15.68
I-4 (n = 68)	119.40	12.81

Note.—A high score indicates more foresight.

The F-ratio between groups was 7.68,

2, 135 df, $p < .001$.

Table 8
 MEANS AND ANALYSES OF VARIANCE OF WISC INTELLIGENCE
 FOR THREE I-LEVEL GROUPS

<u>I-Level Group</u>	<u>Verbal I.Q.</u>		<u>Performance I.Q.</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
I-2 (n = 15)	76.07	12.16	77.07	15.91
I-3 (n = 51)	83.90	10.34	92.08	16.14
I-4 (n = 68)	97.00	10.67	104.41	12.15
F-test (2, 131 df)	F=34.53, p < .001		F=26.36, p < .001	

questionnaire measures and behavioral ratings elicited discrepant relationships with I-level classification, a further analysis was performed to clarify these differences in the two methods of measurement. Multitrait-multimethod matrix analysis (Campbell and Fiske, 1959) has been proposed for situations such as this, in which intercorrelations of more than one trait each measured by more than one method are appraised for evidence of convergent and discriminant validity. Campbell and Fiske noted that tests can be considered as combinations of method and trait variance in different proportions. Thus, quite aside from specific content, reliable variance may be elicited by measurement procedures which are logically, although not operationally, distinct from content. Table 9, then, presents a multitrait-multimethod matrix analysis of the alternate measures of locus of control (I-E), cognitive complexity (CC), and internalized guilt (IG). The two methods of measurement used, questionnaire and behavior ratings, are designated in the table, respectively, as instrument and rated variables.

Before evaluating the matrix, it should be noted that this is an unusual use of the multitrait-multimethod approach because the instrument variables are not measured by exactly the same methods. Two of the instruments are forced-choice questionnaires, while the other is an incomplete sentences test. However, they do share in common the written format and can logically be expected to correlate with intelligence. In this sense they are considered to share the same method

Table 9

MULTITRAIT-MULTIMETHOD MATRIX ANALYSIS OF DUPLICATE MEASURES

	Instrument Variables			Rated Variables		
	CC	I-E	IG	CC	I-E	IG
Instrument Variables	CC	-.02	-.02	(.29)	-.29	.27
	I-E	1.00	-.28	-.19	(.22)	-.13
	IG	-.02	1.00	-.04	.01	(.24)
Rated Variables	CC	(.29)	-.19	1.00	-.76	.61
	I-E	-.29	(.22)	-.76	1.00	-.49
	IG	.27	-.13	.61	-.49	1.00

Note.—The validity diagonals are the two sets of values in parentheses.

Monomethod submatrices are within darkened lines; heteromethod submatrices are outside darkened lines. With 136 df a coefficient is significant ($p < .05$) at .17 and highly significant ($p < .01$) at .22.

of measurement. The rated variables more obviously share the same method because the ratings for all three traits were made by the same judges in each case.

Several informal criteria have been proposed by Campbell and Fiske for evaluating the multitrait-multimethod matrix. One of these is that the heteromethod convergent validities should be statistically significant and high enough to warrant further consideration of their validity. The intercorrelations on the validity diagonals presented in Table 9 meet these criteria ($p < .01$), giving evidence of acceptable convergent validity for both the instrument and rated measures of the three constructs. Another criterion is that convergent validities should be higher than intercorrelations between the test and the irrelevant variables, which would be expected to share neither trait nor method variance. In the present matrix this condition is also met satisfactorily, except for the correlations of instrument CC with rated I-E (-.29) and rated IG (.27). The consistently high correlations of all the rated variables with instrument CC suggests that some informal (perhaps unconscious) assessment of the youth's cognitive complexity invests all of the judgments by the cottage staff and caseworkers.

A further criterion is that the intercorrelations should be higher with relevant traits measured by independent methods than with irrelevant traits measured by a common method. This condition refers to the discriminant validity

of the methods being used. Referring to the monomethod matrices in the lower right and upper left quadrants of Table 9, it is apparent that this criterion is not met. Rather, the heterotrait-monomethod correlations are higher than the monotrait-heteromethod correlations (the validity coefficients in parentheses) for all the rated variables and for the instrument assessment of I-E with IG. The only monomethod correlations that meet the criterion are those for instrument assessment of CC with I-E and with IG. It is feasible that the heterotrait-monomethod correlation of $-.28$ between instrument I-E and IG may be because they share the same test format (forced-choice). Each of these correlated only $.02$ with the sentence completion measure of cognitive complexity (CC).

The excellent discriminant validity for instrument CC strongly affirms the construct validity of I-level with regard to this variable. The mixed discriminant validity for instrument IG and I-E has little consequence for this study since neither validated I-level theory in the initial analyses presented here. However, the lack of discriminant validity for the behavioral ratings is disturbing because they unequivocally validated I-level theory in all three respects. This, plus their consistently high correlation with instrument CC, raises the ominous prospect that the Devil may have more to say about intelligence than this study otherwise can show for interpersonal maturity.

What is being suggested here, in part, is that method variance in the form of possible "halo" and "leniency" effects in the behavior ratings (see Berkshire, 1958) may have been responsible for not allowing the raters to discriminate sufficiently among the various constructs being measured. It may have been, for instance, that the raters were primarily responding to their assessment of a youth's cognitive complexity, and then "unconsciously" judging him on the dimensions of internalized guilt and locus of control in a way which would fit their prior assessment of his cognitive traits. On the other hand, the observers may have made their ratings higher or lower on the three variables simply in terms of whether they personally liked or disliked the youths. The preference or liking rating included among the items on the behavior rating form (see Appendix E) was included as a control for this type of possible "halo" effect, an analysis of which may help clarify the nature of the rater judgments. To this end, a correlational analysis of the preference rating was performed. For ease of comparison, Table 10 presents both the original correlation matrix of the preference or liking variable with the three instrument and three rated variables, and a partial correlation matrix of these six variables with liking for the youth partialled out.

The significant correlations between liking and the three rating variables indicate a substantial amount of

Table 10

CORRELATION MATRIX OF LIKING VARIABLE WITH INSTRUMENT AND
 RATED VARIABLES AND PARTIAL CORRELATION MATRIX WITH
 LIKING PARTIALED OUT

		Correlation Matrix						
Instrument Variables		Instrument Variables			Rated Variables			
		CC	I-E	IG	CC	I-E	IG	LIKING
CC	1.00	-.02	-.02	.29	-.29	.27	.14	
I-E	-.02	1.00	-.28	-.19	.22	-.13	.02	
IG	-.02	-.28	1.00	-.04	.01	.24	.01	
CC	.29	-.19	-.04	1.00	-.76	.61	.35	
I-E	-.29	.22	.01	-.76	1.00	-.49	-.27	
IG	.27	-.13	.24	.61	-.49	1.00	.43	
LIKING	.14	.02	.01	.35	-.27	.43	1.00	

Table 10 (Continued)

		Instrument Variables			Rated Variables		
		CC	I-E	IG	CC	I-E	IG
Instrument Variables	CC	1.00	-.02	-.02	.26	-.27	.23
	I-E	-.02	1.00	-.28	-.21	.24	-.15
	IG	-.02	-.28	1.00	-.04	.00	.27
Rated Variables	CC	.26	-.21	-.04	1.00	-.73	.55
	I-E	-.27	.24	.00	-.73	1.00	-.43
	IG	.23	-.15	.27	.55	-.43	1.00

"halo" effect in the ratings. However, removing the effect of personal liking did not decrease the validity coefficients of the rated variables. Apparently the rater's personal attachment to the child cannot explain the correlation of the ratings with interpersonal maturity level.

Since personal liking is only one of many variables which can contribute to "halo" effects, and since a positive correlation was noted between the liking rating and the instrument measure of CC ($r = .14$, 1, 136 df, $p < .10$), it continued to seem possible, as suggested above, that the raters were responding to the level of cognitive complexity of a youth, and then rating him accordingly on the other two constructs. In support of this notion, other studies have shown (see Foster, Horn and Wanberg, 1972) that frequently when raters judge a person favorably or unfavorably on a dimension which is personally important to them, it is consequently very difficult for them to avoid adjusting their ratings on the other dimensions being evaluated to correspond with their favorable or unfavorable perceptions of the person on the dimension which they consider most important.

As a further consideration of possible contribution to "halo" effect in the present study, a correlation of .16 was found between the liking rating and verbal intelligence ($p < .05$). Conceivably the raters may have been responding primarily to the intelligence of the youths in making their judgements, or perhaps to a combination of the effects of

of verbal I.Q. and cognitive level. In an attempt, then, to further clarify the bases for the rater judgments, an additional analysis of the rater variables was performed. Table 11 presents the results obtained when the effects due to cognitive complexity and verbal I.Q. are removed from the behavioral ratings.

As is obvious from the table, the reasoning that supported the supposition that either cognitive complexity or verbal I.Q. or both were significantly influencing the rater judgments is clearly discredited. Rather, the resultant reduction in the size of the validity coefficients of the rated variables is minimal.

In conclusion, taking all of these analyses together with the lack of discriminant validity shown for the ratings, it is virtually impossible to justify a claim of construct validation for I-level for the constructs of locus of control and internalized guilt on the basis alone of the significant relationships shown between the rater variables of these two constructs and I-level in the F-tests of the principal hypotheses. In other words, it is concluded that the rating data support the validity of I-level theory in a general way but hardly indicate much specific construct validity. Something consistent with the theory was tapped by the ratings, but it is difficult to delineate precisely what that was. It will be important to include these rated variables in the more complicated analyses which follow, and to observe them closely for possible clues regarding their interpretation.

Table 11

SUMMARY OF CORRELATIONAL ANALYSES OF RATER VARIABLES WITH
 COGNITIVE COMPLEXITY PARTIALED OUT ALONE AND COGNITIVE
 COMPLEXITY AND VERBAL I.Q. PARTIALED OUT TOGETHER

Cognitive Complexity Partialled Out

		Rater Variables		
		CC	I-E	IG
Rater Variables	CC	1.00	-.73	.58
	I-E	-.73	1.00	-.44
	IG	.58	-.44	1.00

Cognitive Complexity and Verbal I.Q.
 Partialled Out Together

		Rater Variables		
		CC	I-E	IG
Rater Variables	CC	1.00	-.74	.58
	I-E	-.74	1.00	-.44
	IG	.58	-.44	1.00

Factor Analysis of Dependent Measures

Factor analysis is mainly important because of its usefulness in the clarification of constructs. According to Nunnally (1967), the first step in the explication of constructs is to develop measures of particular attributes which are thought to be related to the construct (in I-level theory, such attributes as locus of control, cognitive complexity, ability to delay gratification, etc.). The second step is to correlate scores on the different measures considered important. These correlations are then analyzed to determine whether 1) all the measures are dominated by one common factor, 2) all the measures are dominated by specific factors, or 3) the measures tend to break up into a number of common factors (Nunnally, 1967). If the analysis indicates, for instance, that item number two is the case, then the third step in the explication of a construct is to perform experiments relating that construct to other constructs.

The first part of this section of the data analysis has been directed toward assessing the nature of the relationship of particular attributes to I-level classification; these are attributes which have been theorized to be important, but have not been shown empirically to be so. As has been shown in the previous analyses, most of these attributes do in fact appear to be significantly related to I-level. It is appropriate at this point, therefore, to investigate the specificity or communality of the variables related to I-level, or as Cattell (1966) has

described the process, to see "the resolution of many variables into fewer." Factor analysis is a useful tool for this kind of construct validation and provides a means by which the dimensionality of the present data can be viewed more parsimoniously.

For a broad examination of the relationships that existed among the larger pool of variables an intercorrelation matrix was obtained for 25 variables. An 11 by 11 submatrix of the major variables considered central to I-level theory was extracted from this larger matrix for further analysis. (The delay of gratification variable was omitted due to the unavailability of data for a number of subjects in one of the groups.) Eigenvalues and eigenvectors were obtained from this submatrix with a principal components analysis and four factors were retained with associated eigenvalues (roots) greater than one (Horn, 1965). A principal factor solution was then derived by entering the squared multiple correlations of each variable with all other variables into the diagonal of the matrix as initial lower-bound communality estimates. Iterations were then performed (with four factors) until communality values from immediately preceding solutions converged for each variable. This procedure has been shown to converge by Wrigley (1956). Factors were then rotated to an approximation to simple structure (Thurstone, 1947), by application of the Varimax procedure (Kaiser, 1958). The four orthogonal factors provided by this rotation and the respective loadings

for the eleven variables are presented in Table 12. In discussing the factors, coefficients of .30 or larger will be given major emphasis in defining a primary factor, although occasionally, coefficients as low as .25 will be used for help in interpreting a factor.

An overall interpretation of the analysis presented in Table 12 is that through factoring, four fairly distinct psychological dimensions have been identified for discussion concerning the primary influences operating within I-level classification, at least for the variables considered in the present study.

Salient loadings on Factor I include the WISC measures of verbal and performance I.Q., as well as Hunt's measure of cognitive complexity. This was labeled for the present study as a factor of general intelligence.

Factor II is primarily a rating factor, i.e., all of the items involving the observer ratings come together in this one factor. This is further evidence for the lack of discriminant validity of the rater variables, since if they were discriminating sufficiently, each should load on one of the other primary factors. However, Factor II may or may not be artifactual in the sense that the ratings may be contaminated by some form of "halo" effect or by confusion of the raters regarding the constructs, but they may just as possibly represent a factor important to I-level differentiation which is not identifiable from the present data. This latter possibility cannot be discounted until proven otherwise.

Table 12
 FACTOR ANALYSIS: ROTATED FACTOR MATRIX OF
 ELEVEN DEPENDENT VARIABLES

<u>Variable</u>	<u>Factor</u>			
	I	II	III	IV
1. Verbal I.Q. (WISC)	.99	.15	.01	.09
2. Performance I.Q. (WISC)	.70	.05	.27	-.01
3. Locus of Control (Rotter I-E Scale)	-.04	-.18	-.04	-.29
4. Internalized Guilt (Mosher Guilt Scale)	-.02	-.04	.01	.93
5. Cognitive Complexity (Hunt CC Measure)	.52	.24	.18	.00
6. Foresight (Porteus TQ)	.14	.13	.63	-.03
7. Impulse Control (Porteus Q)	-.22	-.07	-.91	.01
8. Rated Locus of Control (Behavioral I-E Rating)	-.11	-.75	-.14	-.03
9. Rated Internalized Guilt (Behavioral IG Rating)	.09	.65	.18	.27
10. Rated Cognitive Complexity (Behavioral CC Rating)	.15	.90	.14	.00
11. Rated Liking (Preference)	.09	.42	-.04	.02

Factor III obtained salient loadings on the Porteus Maze measures of impulse control and foresight. This was identified as a factor of performance I.Q., or preferably a more comprehensive label and related to Vernon's hierarchical model of intelligence reviewed earlier, as a spatial-practical-mechanical factor (Vernon, 1965). This label is given added credence by the increased loading on Factor III of the WISC measure of performance I.Q.

Factor IV, loaded most highly on the Mosher Guilt Scale with a fair amount of loading on the Rotter I-E measure, was identified as a factor of internalized standards or values. It is of interest that the rater variable of internalized guilt also loaded fairly highly on this factor, giving additional evidence for the convergent validity of these two measures of guilt.

Among other considerations, the clustering of these factors indicates that cognitive complexity covaries with verbal intelligence. In addition, due to the high loadings of both of these constructs on Factor I, a further analysis seemed appropriate in order to clarify the relative importance of each in discriminating between I-level groups.

Discriminant Function Analysis of Dependent Measures

Multiple discriminant analysis (Cooley and Lohnes, 1962) is a statistical technique for deriving linear combinations of variables which yield the maximum discrimination among two or more groups. A major advantage of this kind of analysis in investigations such as the present one is

that it may isolate combinations of variables which discriminate among groups even in cases where no single variable is predictive.

In contrast to analysis of variance in which each predictor variable is treated separately as a dependent variable, and the F-test indicates whether or not it discriminated among groups, in discriminant function analysis predictor variables are examined in company with each other, and the unique contributions to discrimination are represented in discriminant weights. In a general way, discriminant functions are probably more similar to multiple regression equations than they are to any other statistical function. In the limiting case of two groups, the discriminant function is virtually equivalent to the multiple regression equation (Waters, 1970).

Suppressor influences are represented in a discriminant function. For example, if variables A and B both discriminate between groups and for the same reason (i.e., represent the same variance), then the discriminant weight for the one of these variables which discriminates best will be large and the weight for the other will be small (perhaps even negative). The variance represented by the two variables is counted only once--in the variance which represents it best.

These considerations mean, for instance, that if two variables showed significant discrimination when each was considered separately by analyses of variance, it is

possible that only one would have a discriminant weight of noteworthy size. Only if both represented unique contributions to the discrimination would both have sizeable discriminant weights. Thus discriminant function analysis might be seen in a sense as more economical in the attempt to identify important correlates of I-level, as the technique may "pull out" the most critical variables and thereby provide a more compact or parsimonious account of variance due, for example, to verbal I.Q. or cognitive complexity.

The statistical significance of the separation between groups achieved by the discriminant may be tested by calculating a value "V," based on the eigenvalue of the discriminant, the number of groups, and the number of variables; V is then referred to a chi-square table (Anderson, 1966). The formula for V is:

$$V = - \left(N - \frac{t+g}{2} \right) \log_e \Lambda$$

with N = total number of Ss, t = number of variables, g = number of groups, and $\Lambda = \frac{1}{1+\lambda}$, λ being the eigenvalue (Anderson, 1966).

Table 13 presents the two discriminant functions derived for the ten major dependent variables in this study (again excluding delay of gratification).

The first discriminant provides 79.60 per cent of the total variance in this data analysis. The variable having by far the largest weight is instrument cognitive complexity. The degrees of freedom appropriate to the statistic "V" for

Table 13
DISCRIMINANT FUNCTION ANALYSIS OF
DEPENDENT MEASURES

<u>Variable</u>	<u>Weights</u>	
	<u>First Discriminant</u>	<u>Second Discriminant</u>
1. Verbal I.Q. (WISC)	.03	.02
2. Performance I.Q. (WISC)	.02	-.01
3. Locus of Control (Rotter I-E Scale)	-.04	.00
4. Internalized Guilt (Mosher Guilt Scale)	.01	.00
5. Cognitive Complexity (Hunt CC Measure)	.98	-.90
6. Foresight (Porteus TQ)	.01	.00
7. Impulse Control (Porteus Q)	-.02	-.06
8. Rated Locus of Control (Behavioral I-E Rating)	-.12	-.33
9. Rated Internalized Guilt (Behavioral IG Rating)	-.08	.02
10. Rated Cognitive Complexity (Behavioral CC Rating)	.10	-.26
Eigenvalue	1.03	0.26
Proportion of Variance Accounted for	79.60	20.40
F	8.15	
df	20, 272	
p	.001	

the first discriminant, calculated from the above mentioned parameters, are $(t + g - 2)$, where t = the number of variables and g = the number of groups. For the second discriminant $df = (t + g - 4)$ (Anderson, 1966).

For the first discriminant, $V = 92.35$, $df = 11$, which is significant at the .001 level ($p < .001$).

The second discriminant provides 20.40 per cent of the total variance in this analysis. The largest weight is again on the instrument variable of cognitive complexity, with rated locus of control and rated cognitive complexity carrying the next highest weights. For the second discriminant, $V = 30.62$, $df = 9$, which is also significant at the .001 level ($p < .001$).

There is little question from this analysis that Hunt's measure of cognitive complexity is the best single predictor of I-level classification among the variables investigated in this study. It was noted above that two variables could each show significant discrimination when each was considered separately by analysis of variance, and yet possibly only one would have a discriminant weight of notable size. The present analysis illustrates and supports this contention of the usefulness of discriminant function analysis as a statistical technique for the present type of research effort.

One further point which this analysis makes is that, in a very real sense, the implied ordinal relationships between stages of I-level theory, i.e., that Level 2 < Level 3 <

Level 4, is validated by the discriminant function. This is seen because the discriminant which best separates the three I-level groups also indicates that the groups occur along its linear axis in the same ordering as is posited by I-level theory. This particular ordering did not have to occur in the analysis. It appears from this that an implicit validity of the ordering of the levels has been demonstrated.

Multiple Regression Analysis. As noted, for the limiting case of two groups, discriminant function analysis and multiple regression analysis are virtually identical, i.e., the pooled regression analysis for two groups can be looked at as the same as a discriminant function analysis for those groups. Multiple regression is concerned with the ability to predict from several variables considered simultaneously. It also illustrates the form of the relationship which occurs, and specifically, whether this relationship can be approximated well by a linear function (Hays, 1963). In a problem in regression, one variable is clearly the independent or predictor variable, the variable manipulated or known first by the experimenter. This variable X is represented at several arbitrary values in the experiment. The only interest here is in the possibility and degree of linear prediction of Y from X.

If X is the score on a criterion variable and $Y_1, Y_2 \dots$ are predictor variables, then X is treated as a weighted sum of predictor variables, as in

$$X_1 = W_1 Y_1 + W_2 Y_2 + \dots + W_m Y_m.$$

In the simplest case there may be only one predictor and one criterion variate. The general solution or model makes no restriction on the kind of measures used. They may be discrete, continuous, or dichotomous for either type of variable. In general, for this model the unit and origin of both sets of variables is irrelevant (Horst, 1966).

The discriminant function analysis performed above was useful in obtaining information as to the best discriminant for three I-level groups. The possibility remained, however, that for any two I-level groups the predictor or discriminant may not be the same as for all three groups considered together. In order to test this possibility, multiple regression analyses were performed for I-level groups 2 and 3 together, groups 3 and 4 together, and groups 2 and 4 together. The results of these analyses are presented in summary form in Table 14.

The F-ratio for multiple regression analyses is calculated from the formula:

$$F = \frac{R^2 (N-p-1)}{p (1-R^2)}$$

where R^2 = the squared multiple correlations between the criterion and predictor values, p = the number of predictors, and N = the total number of subjects (adapted from Anderson, 1966).

From the table it is seen that essentially four predictors are discriminating differentially for the three I-level groupings. For discriminating between Levels 2 and 3, cognitive complexity as measured by Hunt's test remains

Table 14
 SUMMARY OF ANALYSES OF MULTIPLE REGRESSION OF
 ELEVEN DEPENDENT VARIABLES ON I-LEVEL
 CLASSIFICATION FOR THREE SETS OF GROUPS

Variable	<u>I-Level Groups</u>		
	I-2 and <u>I-3</u>	I-3 and <u>I-4</u>	I-2 and <u>I-4</u>
1. Verbal I.Q. (WISC)	.03	.34	.19
2. Performance I.Q. (WISC)	.28	.09	.27
3. Locus of Control (Rotter)	-.12	-.02	.00
4. Internalized Guilt (Mosher)	.19	.01	.00
5. Cognitive Complexity (Hunt)	.27	.11	.07
6. Foresight (Porteus TQ)	-.06	.08	.14
7. Impulse Control (Porteus Q)	-.17	-.04	-.12
8. Rated Locus of Control	-.23	-.01	-.20
9. Rated Internalized Guilt	.02	-.03	.00
10. Rated Cognitive Complexity	.01	.27	.10
11. Rated Liking (Preference)	-.09	-.08	-.09
Multiple Correlation	.61	.62	.75
Standard Error of Estimate for Standard Scores	.80	.78	.67
F	3.04	6.36	8.11
df	11, 58	11, 111	11, 71
p	.01	.001	.001

a crucial variable, however the WISC performance measure is an equally good predictor for these two groups (i.e., contributes a similar amount of unique variance). These two measures used in combination would apparently be highly effective in separating Level 2 and Level 3 youths. The best predictive variable for separation of Levels 3 and 4, however, is clearly verbal intelligence, as measured by the WISC. It is of interest to note that the rating variable of cognitive complexity is also shown effective in distinguishing between these two groups. For Levels 2 and 4, the best discriminant is again the variable of non-verbal or performance intelligence.

A caveat is in order here regarding the interpretation of regression equations. The beta weights of regression equations are notably difficult to interpret, a situation which is partly due to sampling limitations. It is known, for instance, that because of sampling phenomena, beta weights frequently lack stability in replication (Hays, 1963), a regrettable circumstance due to the distribution of correlations in the population. This is particularly noted when the predictor variables are substantially correlated with one another, which is the case with these data.

With this in mind, the results of the regression analyses cited will not be weighed too heavily. However, in light of these results and their similarity to the apparent covariance noted previously of verbal intelligence and cognitive complexity, a further analysis was performed.

The practicality of considering at some length the effects due to cognitive complexity and verbal I.Q. (perhaps best predictors, as noted above, for Levels 2 and 3, and Levels 3 and 4, respectively) is fairly obvious to I-level diagnosticians. They have frequently shared the observation that the most difficult diagnoses (and therefore the most errors) are made in attempting to distinguish between Levels 3 and 4.

Comparative Analysis of Alternate Measures to I-Level Classification

The question must be raised as to how distinct the I-level classification system actually is from the constructs of verbal intelligence and cognitive complexity, constructs which are purportedly relatively insignificant in determining I-level classification (Warren, 1972). This, too, is a question of some practical relevance, since the I-level diagnostic interview is a somewhat timely and costly operation. It may well be expedient to find other, more economical ways of arriving at the same classifications.

Table 15 presents a listing of the intercorrelations of the dependent variables with I-level classification, cognitive complexity, and verbal intelligence. Table 16 presents a summary of the analyses of variance of the dependent variables with I-level, cognitive complexity, and verbal intelligence, each treated separately as independent variables. Since the correlation coefficients included some scores whose conformance to parametric

Table 15

TABLE OF INTERCORRELATIONS OF I-LEVEL, COGNITIVE COMPLEXITY,
WISC VERBAL I.Q. AND THE DEPENDENT VARIABLES

<u>Instruments</u>	<u>I-Level</u>	<u>Hunt CC</u>	<u>Verbal WISC</u>
Verbal I.Q. (WISC)	.58**	.57**	--
Performance I. Q. (WISC)	.53**	.41**	.71**
Locus of Control (Rotter I-E)	-.15	.02	-.15
Internalized Guilt (Mosher GS)	.05	.02	.05
Cognitive Complexity (Hunt CC)	.50**	--	.57**
Foresight (Porteus TQ)	.32**	.19*	.18*
Impulse Control (Porteus Q)	-.37**	-.31**	-.23**
<u>Behavioral Measures</u>			
Locus of Control (Rated I-E)	-.40**	-.29**	-.21*
Internalized Guilt (Rated IG)	.28**	.27**	.19*
Cognitive Complexity (Rated CC)	.42**	.29**	.29**
Delay of Gratification (Feather)	.15	.13	.12
Liking (Rated Preference)	.07	.14	.16*

Note. — * $p < .05$
 ** $p < .01$

Table 16
 SUMMARY OF ANALYSES OF VARIANCE OF DEPENDENT VARIABLES AS
 FUNCTION OF I-LEVEL, COGNITIVE COMPLEXITY,
 AND WISC VERBAL I.Q.

<u>Instruments</u>	<u>I-Level</u>	<u>Hunt CC</u>	<u>Verbal WISC</u>
Verbal I.Q. (WISC)	34.53****	32.17****	--
Performance I.Q. (WISC)	26.36****	17.51***	59.97****
Locus of Control (Rotter I-E)	1.68	0.64	0.75
Internalized Guilt (Mosher GS)	.58	1.75	0.84
Cognitive Complexity (Hunt CC)	32.23****	--	24.83****
Foresight (Porteus TQ)	7.68**	6.31**	2.03
Impulse Control (Porteus Q)	11.35***	13.54***	3.09*
<u>Behavioral Measures</u>			
Locus of Control (Rated I-E)	11.67***	6.02**	1.91
Internalized Guilt (Rated IG)	7.10**	3.86*	5.83**
Cognitive Complexity (Rated CC)	15.08***	5.62**	6.35**
Delay of Gratification (Feather)	2.33	0.81	0.03

Note. — * p < .05
 ** p < .01
 *** p < .005
 **** p < .001

assumptions is somewhat questionable, the reader will probably want to place greater reliance on the F-values reported, for which there is no question of violated parametric assumptions.

In treating cognitive complexity and verbal I.Q. as independent variables for analysis with the dependent variables, it was necessary to assign scores on these measures to three groups which approximated the original distribution of subjects within I-level groups. Scores on the Hunt CC measured ranged from 0.00 to 2.00 and were cut off at two points in the distribution which approximated as closely as possible the breakdown in the I-level distribution (I-2 = 15; I-3 = 55; I-4 = 68). This breakdown yielded a distribution for three groups with Ns of 20, 65, and 53 (low, middle, and high CC, respectively). Verbal intelligence groupings were drawn from the extremes of the verbal I.Q. scores in direct proportion to the I-level distribution. Thus, the lowest 15 scores were considered to be a grouping of low verbal intelligence, the highest 68 scores were labeled the high intelligence group, and the remaining 55 scores, a middle intelligence grouping.

From Table 15 it is apparent that the intercorrelations among the different variables are quite similar, and from Table 16 it is shown that there is not a sizeable degree of difference in the ability of I-level, cognitive complexity as measured by Hunt's test, and the Verbal WISC to separate groups on the dependent variables listed. As

might be expected from the results of the discriminant function analysis, the measure of cognitive complexity reaches significance on all the variables with which I-level was significant, while verbal I.Q. obtains significance on all but two of the variables. While, as expected, the F-values for I-level are generally somewhat higher, cognitive complexity does equally as well as I-level classification for separating groups on the variables of foresight and impulse control, while verbal I.Q. does as well for instrument cognitive complexity and the behavioral measures of internalized guilt and cognitive complexity. It would appear from these data that perhaps a feasible alternative to the time-consuming process of the I-level interview, would be to use Hunt's measure of CC in combination with a measure of verbal intelligence for obtaining I-level classifications.

Test of the Devil's Advocate Hypothesis

The Devil's Advocate hypothesis stated that when systematic group differences in intelligence are controlled, all other differences predicted between I-level groups disappear. From the results of the previous analyses, and specifically the strong effect shown due to both verbal intelligence and cognitive complexity on I-level classification, the test of this hypothesis would seem to be an essential one as a final test of the construct validity of I-level theory.

There is an additional reason for partialing out the effects due to intelligence. An obvious reservation about the instruments selected for measuring locus of control, internalized guilt, cognitive complexity, foresight, and impulse control is that they are all paper-and-pencil devices. They are to be considered as validity criteria for the interpersonal maturity construct, yet I-level is measured by intensive clinical interview. In one sense, then, the written instruments constitute stringent tests of validity because they are based on quite different assessment procedures. On the other hand, as noted above, the Devil's Advocate hypothesis articulates the view that I-level classification may reflect primarily intelligence, which is well known to correlate highly with scores on many written instruments. In this sense the written validity criteria might be contaminated--and thus too lenient--through the mediation of intelligence.

Table 17 presents four sets of data: first, the original correlations between I-level and each of the dependent variables; second, a presentation of the results of a covariance analysis of the dependent variables against I-level with verbal intelligence partialled out; third, the results of partialing out both verbal and non-verbal intelligence together; and fourth, the results when the effects due to verbal intelligence, non-verbal intelligence, and cognitive complexity are all partialled out together.

Table 17

SUMMARY OF PARTIAL CORRELATIONS OF DEPENDENT VARIABLES WITH I-LEVEL: PARTIALING OUT
 VERBAL I.Q. ALONE, VERBAL AND NON-VERBAL I.Q. TOGETHER, AND VERBAL I.Q.,
 NON-VERBAL I.Q., AND COGNITIVE COMPLEXITY TOGETHER

Instruments	Original Correlation	Verbal I.Q. Partialled Out	Verbal and Non-Verbal I.Q. Partialled Out	Verbal I.Q., Non-Verbal I.Q., and Cognitive Complexity (Hunt) Partialled Out
Locus of Control (Rotter I-E)	-.15	-.09	-.13	-.15
Internalized Guilt (Moshier GS)	.05	.02	.04	.05
Cognitive Complexity (Hunt CC)	.50**	.25**	.25**	---
Foresight (Porteus TQ)	.32**	.27**	.24**	.22**
Impulse Control (Porteus Q)	-.37**	-.30**	-.24**	-.20*

Table 17 (Continued)

<u>Behavioral Ratings</u>	<u>Original Correlation</u>	<u>Verbal I.Q. Partialled Out</u>	<u>Verbal and Non-Verbal I.Q. Partialled Out</u>	<u>Verbal I.Q., Non-Verbal I.Q. and Cognitive Complexity (Hunt) Partialled Out</u>
Locus of Control (Rated I-E)	-.40**	-.34**	-.35**	-.31**
Internalized Guilt (Rated IG)	.28**	.22**	.22**	.18*
Cognitive Complexity (Rated CC)	.42**	.32**	.33**	.30**
Liking (Rated Preference)	-.07	-.03	-.03	-.02

Note. —* p < .05
 ** p < .01

It is now time to lay the Devil to rest. The data presented in Table 17 clearly indicate that when the effects of both verbal and non-verbal intelligence are removed from the dependent variables, there still remains a significant relationship of the instrument measured constructs of cognitive complexity, foresight, and impulse control, as well as each of the three constructs measured by behavioral ratings (although these are more difficult to interpret) to I-level classification. The same results are true when Hunt's measure of cognitive complexity is also removed. A discussion of the implications of the findings presented in this chapter follows immediately below.

Chapter VI

DISCUSSION

Due to the relative clarity of the results as described in the previous chapter, this discussion will be primarily directed toward briefly summarizing the results of the analyses and then considering some implications of these findings for I-level theory and classification.

I-level was unequivocally validated in respect to the constructs of cognitive complexity, impulse control, and foresight. There was a slight trend for delay of gratification to be significantly related to I-level classification; however, due to the inadequate number of subjects in one of the groups tested on this measure, these results cannot be assigned too much importance. On the other hand, both locus of control (internal-external orientation) and internalized guilt did not show a significant relationship to I-level, and thus I-level theory was not validated in respect to these constructs.

At the same time that I-level was validated for the constructs of cognitive complexity, impulse control, and foresight, a highly significant positive relationship was demonstrated between verbal and non-verbal (performance) intelligence and I-level classification. In addition, further analyses indicated that of all the variables investigated, cognitive complexity was the best single

predictor or discriminator of I-level classification. However, even when the effects due to intelligence and cognitive complexity were removed from the data, the constructs validated continued to maintain their statistically significant relationships to I-level diagnosis. In general, it would seem reasonable to claim that the present results have validated I-level theory for certain constructs reputedly central in its formulation, have not validated it for certain other constructs, and that there evidently is more to I-level than can be explained by intelligence and/or cognitive complexity. Having made this statement, however, it must be conceded that all of the measures in this study which clearly validated the theory are tasks that correlate with intelligence to a considerable extent (Porteus Mazes and sentence completions).

A related study recently brought to the attention of the author, should be noted here. Cross and Tracy (1971) investigated the hypotheses that as interpersonal maturity increases 1) internal control will become stronger, 2) time perspective will be projected further into the future (this is related to delay of gratification and foresight), and 3) guilt will increase. The measures used to test these three hypotheses were, respectively, the reverse form of the Children's Locus of Control Scale (Bialer, 1961), the Future Events Test (Stein, Sarbin, and Kulik, 1968), and the Mosher Guilt Scale in combination with an eight-question transgression interview, which was tape-recorded and later

analyzed by a content analysis and a global clinical rating. Their results substantiated hypothesis one, but did not support hypotheses two and three. Similar to the present study, then, Cross and Tracy also did not find a significant relationship of I-level and internalized guilt; unlike the present results, however, and using a different measure, they did show a significant relationship between locus of control and I-level ($F = 3.48, df = 1, 113, p < .05$). It is difficult to explain this difference in the statistical significance of the results of the two studies and perhaps additional research, utilizing both of these measures of locus of control, should be conducted. Indeed, since one of the major diagnostic indicants in the I-level interview for separating Level 3 and Level 4 is the judged presence or absence of internalized controls or standards, some further investigation of this construct seems appropriate. This is true particularly since the guilt measure used in both studies, which also should theoretically show differential internalization, yielded results unequivocally not related to I-level classification.

A few informal observations regarding the results from use of the Mosher Guilt Scale may be appropriate here. The first is an observation of the characteristic response styles of one of the subtypes within Level 4. Labeled Neurotic-Acting-out (NA) youths, a dominant characteristic of this group (who comprise nearly half of the population of I-4 juvenile offenders) is a tendency to deny categorically any

feelings of inadequacy or inferiority. The feelings of guilt, anxiety, and negative self-image are theoretically present within the I-4 NA, however, an admission of these feelings will not readily be forthcoming. The subtypes within I-level classification (unlike the theory of levels) are said to be empirically derived, and if this characteristic of the NA was indeed operating in the present study, it might help explain the lack of increased internalized guilt as I-level increased.

A further comment is directed to the Mosher Guilt Scale itself. While this instrument has been used successfully with delinquent populations (e.g., Ruma and Mosher, 1967), a glance at some of the items included and the scorings applied to various choices raises the question as to the appropriateness of this measure for use with the relatively sophisticated youthful offender of today's society. As an example, for the stem "I regret . . ." the choices available are A. "my sexual experiences" or B. "nothing I've ever done." Choice A is scored +2 and Choice B is scored -2 (a high score indicates more internalized guilt). For the stem "Women who curse . . ." the alternatives are A. "are normal" or B. "make me sick." A is scored -1; B, +2. "Sin and failure . . ." A. "are the works of the Devil" or B. "have not bothered me yet." A is scored +2; B, -2. Admittedly, these examples are extreme cases and many of the other items on Mosher's scale are reasonable in content and scoring (see Appendix II).

For future research on internalized guilt with juvenile offenders, however, perhaps additional or alternative measures should be sought.

A final observation here relates to both the Moshier Guilt and Rotter I-E scales as paper-and-pencil forced-choice instruments. It was suggested earlier that the notable lack of discriminant validity between these two measures ($r = .28$, $p < .01$) may have been because they share the same test format. This seemed a reasonable speculation since the quite different instrument measure of cognitive complexity (sentence completions) gave evidence of excellent discriminant validity with both the Moshier and Rotter tests ($r = .02$ in each case). The inadequacies of paper-and-pencil instruments are well documented and the researcher who uses them does so with an awareness of the penalties which result from the additional error variance introduced into his design. However, particularly when forced-choice tests are administered to groups, it is very easy for individual subjects, responding from a myriad of possible motivations, to respond randomly or carelessly to the questionnaire items. One of these possible motivations has been colorfully coined by Masling as the "screw you" effect, and the subjective impressions of the experimenters and scorers of data in the present study verified the notion that certain juvenile offenders may be particularly willing to "screw" the establishment-researcher-psychologist, who is perceived

as imposing on their privacy and "messing with their minds." Several of the subjects did in fact follow a strict "A, B, A, B, etc." format throughout the questionnaires, while others were not as obvious as this but the inconsistencies in the content of their responses indicated a random selection of the choices available.

The emphasis here is not to blame the subjects who responded in this manner, but rather to point out the perhaps obvious fact that the probabilities of this phenomenon occurring are much less with instruments such as Hunt's sentence completion test, and even less with measures such as the individually administered Porteus Mazes. It is not insignificant to observe that the only major variables in this study which did not obtain significance with I-level were those measured by the forced-choice instruments. This may mean that the constructs of locus of control and internalized guilt are in fact not related to I-level as the data indicate, or it may mean that the instruments used were not adequate (for the reasons noted above) for exploring this relationship sufficiently. This problem is a particularly difficult one for researchers of personality since the problem is actually the historical question in psychology of how to measure internal constructs. The behavioral ratings used in this study were part of an attempt to measure the youths' internalized guilt and internal-external orientation in ways other than with the forced-choice instruments, yet the problems in interpreting

the ratings were seen clearly in the previous chapter. An immediate solution to this dilemma, of course, is not available; however, it is suggested that future researchers of the I-level construct search for other available measures of internalization, or develop and validate new ones, which would not be so susceptible to the extraneous influences discussed here, and which would therefore allow for a more definitive, more defensible test of the theory.

Discussion for the remainder of this paper will be directed toward considering some implications of the present findings for I-level theory as representative of the cognitive-developmental model, the relationship of intelligence and cognitive complexity to I-level theory, some practical implications of utilizing alternative measures of I-level classification, as well as suggested directions for future research in this area.

Some Implications for I-Level Theory as an Example of the Cognitive-Developmental Approach to Socialization

In Chapter II a description was presented of the assumptions common to cognitive-developmental theories (of which I-level was shown to be representative). One of the general characteristics of cognitive stages was reported to be the existence of an invariant order or sequence in individual development. It was said, for example, that cultural and environmental factors or innate potentialities might cause any child or group of children to reach a given level of development at a much earlier point in time

than another child or group; but that regardless of environmental teaching or lack of teaching, all children should still pass through the same order of steps or levels of development. Stage notions are essentially ideal constructs designed to represent differing psychological organizations at various points in development. According to Kohlberg (1969b), the stage doctrine hypothesizes that these qualitatively different types of organization are sequentially invariant, and therefore that the developmental status of an individual is predictable or cumulative in the same sense as continuity of position on an ordinal scale.

I-level theory, as previously described, postulates seven successive stages of interpersonal maturity. By definition within the cognitive-developmental model, the stages are said to be invariantly ordered. To this writer's knowledge, however, and unlike the demonstrated empirical invariance of Kohlberg's stages of moral development for example, there has been no prior experimental confirmation of the presumed ordering of the levels of interpersonal maturity. In the previous section it was seen that the results of the discriminant function and multiple regression analyses substantiated the postulated orderings of the stages of I-level theory, at least for Levels 2, 3, and 4. The predictor variables which were found to best separate these I-level groups also arranged themselves along a linear axis in the same ordering as is presumed by the theory. While determining the nature of this sequence was not part

of the original design of this experiment, the results do indicate an additional aspect of validation for the theory, as well as lend increased support for the tenet of invariant sequence embodied in the concept of cognitive stages.

In addition to these implications, it was also noted in Chapter II that cognitive-developmental theorists explain basic development in terms of parameters of organizational wholes or systems of internal relations, and thus when describing social-emotional development emphasize the existence of a fundamental unity of personality organization and development known as the ego, or self. While there are various aspects of social development (moral development, intellectual development, psychosexual development, etc.), these aspects are said to be united by their common reference to a single concept of self in a single social world. In other words, these theorists claim (see especially Loevinger, 1966) that in addition to the unity of level of social development due to general cognitive development, there is a further unity of development due to a common factor of ego maturity.

Loevinger rather adamantly prefers to reserve the term ego development for only "what is common to a certain developmental sequence and a certain characterology that applies almost independently of age level. What is common to the developmental sequence and the characterology is an abstraction. To this abstraction and only to this is the

term ego development most appropriately applied (Loevinger, 1966, p. 196)." She admits that her suggestion to apply the term ego development to an abstraction rather than to the concrete stages of growth observable in average children may seem strange at first, but counters that this is true in the accepted concept of mental age. Because all aspects of growth are occurring simultaneously she argues, some criterion other than the normal sequence is needed to distinguish physical growth from intellectual, or intellectual from moral, and so on. Further, what has not been captured fully in any exposition is that the diverse manifestations of aspects at each stage of development at once constitute a simple organic unity and develop through organically related steps. In other words, all these manifestations are part of a single thing--a pervasive thing that cannot reasonably be called less than ego development. What the organizing principle is remains to be clarified.

Loevinger's approach is presented here in an attempt to understand or at least conceptualize the results of the present study which indicated there is more to I-level theory than can be explained by either intelligence or cognitive complexity. Her own formulation of the stages of ego development draws heavily from the work of Sullivan, Grant, and Grant (whom she acknowledges have been concerned with the abstract junction of a developmental sequence and a character typology), and is markedly similar to I-level theory.

Loevinger specifies for each of her seven stages the characteristic mode of impulse control and character development, of interpersonal relations, and of conscious preoccupation, including self-concept. However, she makes what she considers a crucial distinction for measurement in viewing ego development as having two quite different types of manifestations--milestone sequences and polar aspects. Her stages are all characterized in terms of milestone sequences which are defined as observable behaviors that tend to rise and then fall off in prominence as maturity increases. As an example, she cites conformity to generally accepted social standards, which becomes increasingly characteristic of behavior up to a point, but beyond that point with increasing maturity becomes progressively less compelling, though not necessarily turning into nonconformity. On the other hand, an example of a polar aspect is tendency to stereotypy; it constantly and monotonically decreases with increasing ego level. Polar aspects are generally more abstract traits and are harder to judge than milestone sequences, since they must be inferred from patterns of observable behavior. For Loevinger, polar variables hold the key to uncovering the unity due to ego development, while milestones are simply variables along the way to some more comprehensive trait. She would most likely interpret the results of the present study by saying "I told you so," meaning that most of the variables investigated were merely manifestations of milestone

sequences, that the "unexplainable" remaining significant correlations after intelligence and cognitive complexity were removed reflected unobservable polar aspects, and might conclude with the warning that an approach to personality study that is at once behavioristic and quantitative cannot possibly discover or reconstruct the variables central to development. Her comments on the use of factor analysis, as related to this last point, are presented in Appendix M.

Loevinger's beliefs about the nature of ego development and the proper study of this area of investigation, while considered rather extreme and untenable by some critics, deserve consideration. There is certainly nothing in her exposition which is incompatible with the assumptions adhered to by the cognitive-developmental theorists. In any case, it seems worthwhile to consider her "interpretation" of the results of the present study as a thought-provoking, if not a reasonable, explanation. An alternative, though related, hypothesis to Loevinger's is offered in the following discussion of intelligence, cognitive complexity, and I-level.

Intelligence, Cognitive Complexity, and I-Level

In the hypotheses presented in Chapter III, a significant positive relationship was predicted between intelligence and I-level, as well as between cognitive complexity and I-level. Several studies reviewed (see especially Zaidel, 1970) had shown strong relationships between I-level and intelligence,

while the content of the theory itself was shown to indicate fairly clearly that a significant relationship of each of these two variables to I-level should not be surprising. What is surprising, then, is not that these predicted relationships were confirmed, or even that this confirmation was so unequivocal, but rather that for years the founders and developers of I-level, publicly at least, have minimized the effects of intelligence and cognitive complexity on I-level, preferring rather to emphasize the personality variables and interpersonal aspects of the theory.

In reality, it is not quite so easy to separate intelligence from personality variables or social development, although it is understandable that developers of a new theory of personality development would wish to present their formulation as something more than a restatement of the intelligence or abilities literature. Apparently, I-level does involve something more than intelligence, and it would seem that some recognition of the crucial role intelligence plays in the development of interpersonal maturity would not detract from the attractiveness of the theory as presented by its proponents.

The cognitive-developmental approach to socialization makes the assumption that social development is cognitively based since any description of shape or pattern of a structure of social responses necessarily entails some cognitive dimensions. A description of the organization of the child's social responses involves a description of

the way in which he perceives, or conceives, the social world and the way in which he conceives himself. This last sentence is practically a verbatim statement of the basic focus of I-level as presented in Chapter II, where it was said that the theory "focuses upon the ways in which the individual is able to see himself and the world, and the ways he is able to interpret what is happening between himself and others." Again, as a theory of interpersonal maturity within the framework of the cognitive-developmental approach, this similarity of focus of the two models is certainly appropriate, at the same time as it serves to underline the rationale for the results in the present study which show not only a high correlation of level of cognitive complexity with I-level, but of the variables included for study, that cognitive complexity is the best single predictor of I-level classification.

Empirically, Kohlberg notes that the cognitive-developmental approach is derived from the observation that the most prominent and clear changes in the psychological development of the child are cognitive, in the sense of mental age or I.Q. Indeed it has been shown that the influence of intelligence on the social attitudes and behavior of children is such that it has a greater number of social-behavioral correlates than any other single observed aspect of personality (Cattell, 1957). In terms of prediction, the longitudinal study by Anderson mentioned earlier, offers this summary:

We were surprised at the emergence of the intelligence factor in a variety of our instruments (family attitudes, responsibility and maturity, adjustment) in spite of our attempts to minimize intelligence in selecting our personality measures. Next we were surprised that for prediction over a long time, the intelligence quotient seems to carry a heavy predictive load in most of our measures of outcome. It should be noted that in a number of studies, adjustment at both the child and the adult level, whenever intelligence is included, emerges as a more significant factor than personality measures (Anderson, 1960, p. 493).

It seems evident that the power of I.Q. to predict social behavior comes from many sources, including the social and school success experiences associated with "brightness." However, apparently a large part of the predictive power of I.Q. also derives from the fact that more rapid cognitive development appears to be associated with more rapid social development. This interpretation of I.Q. effects was documented in an interesting study by Kohlberg and Zigler (1967) of the sex-role attitudes of bright and average boys and girls. Among other findings, their study indicated that while there were marked and similar developmental trends for both bright and average children, these trends were found to be largely determined by mental as opposed to chronological age. When parallel curves of age-development were plotted for both groups, the curves were found to be approximately two years advanced for the bright children, who were about two years ahead in mental age. For example, the authors note that bright boys would shift from a preference for adult females to a preference for adult males on experimental and doll-playing tests at about four years

of age, whereas the average boys would make this shift at about six years. Kohlberg cites the findings of a similar study in which retarded and average lower-class boys were divided into two groups: father-absent and father-present. The average boys made the shift to the male at 5-6, and the retarded boys at age 7-8. Clearly these findings indicate that sex-role developmental trends are mediated by intelligence, and it seems feasible to presume that interpersonal maturity development is similarly mediated by intelligence or level of cognitive complexity.

Carrying this discussion of I-level and cognitive complexity and intelligence into another area of comparison, a major diagnostic indicant within the I-level interview is the sophistication of youths in ability to perceptually differentiate between people in their environment. Questions such as "How is your Mother different from other mothers?" and "What kind of people do you prefer as friends?" are asked the interviewees in order to determine the extent to which they differentiate what they see in their world. Within the cognitive-developmental model, constructs such as "differentiation" are regarded as structural components of development and as such are considered to characterize every aspect of the personality: the social-emotional, the perceptual, and the intellectual. There is research which indicates that differentiation is quite highly correlated with standard psychometric measures of intelligence as well as with a variety of social attitudes and traits.

Those readers familiar with the original presentation of the theory of Harvey, Hunt, and Schroeder (1961) will recognize the similarity here to their view of personality as increased structural differentiation and integration of conceptions of self and others, which implies both cognitive and attitudinal correlates.

It will be remembered from the description in Chapter II, that the development of cognition and the development of affect were said to be parallel. Clearly, this is not to say that cognition determines affect and behavior, but rather that the development of the two has a common structural base. It was pointed out, directly above, that a structural dimension of development such as "differentiation" is considered to characterize every facet of the personality, and that a significant positive relationship has been found both between differentiation and intelligence, and differentiation and social traits. If differentiation is a basic structural component common to the development of both intelligence (cognition) and social traits (affect), then it does not seem unreasonable to suggest again, not that I-level stages are cognitive, but rather that interpersonal development also has a basic structural component. In other words, in the same way in which the development of cognition and affect were said to have a common structural base, so it is suggested that the development of interpersonal maturity (which has both cognitive and affective aspects) also has a basic underlying structural component (which may,

or may not, be differentiation). While social-emotional components are certainly involved in interpersonal development, it is suggested that the development of these affects is largely mediated by changes in thought patterns, or cognitions.

Accepting this extrapolation for a moment, an implication of this position would be that an empirical correlation should be expected between interpersonal maturity and aspects of cognitive development which are not specifically considered to be aspects of interpersonal maturity. The correlations cited in the literature between I-level and intelligence, ranging from .30 to .59, indicate that interpersonal maturity has a cognitive base, but is not simply general verbal intelligence applied to social situations or relationships. Perhaps another way, then, of explaining the results discussed above from Loevinger's point of view, is that what was left when the correlations in this study were controlled for intelligence, was reflective of a basic structural component, a base common to the development of both cognition and interpersonal maturity. In fact, it seems compatible theoretically to assert that in Loevinger's belief (that the further unity of development due to a common factor of ego maturity can only be meaningfully understood as an abstraction), her term "abstraction" is in actuality nothing more, or less, than the basic cognitive-developmental notion of this common structural component in social development. This component may be

the organizing principle of ego development which Loevinger said was yet to be clarified. Whatever communality, or lack of it, is involved here in these positions, it seems relatively safe to say as an interpretation of the present results within this theoretical framework, that cognitive complexity is a necessary, but not a sufficient, condition for interpersonal maturity.

Some Implications of Utilizing Alternate Measures of I-Level Classification

Interpreting the results of the present study as having shown construct validation for I-level theory, or at least for certain aspects of the theory, leads to the question of what was learned from the data regarding the classification of youths within this system, and therefore to what are the implications of these results for future I-level classification.

From the analyses of the data it was seen that Hunt's measure of cognitive complexity was a highly significant predictor of I-level classification, accounting for 80 per cent of the variance in the discriminant function analysis of the dependent variables. A factor analysis of the variables studied revealed that four fairly distinct, psychological dimensions exerted the major influence on I-level diagnosis. These four factors were identified as general intelligence, spatial-practical-mechanical intelligence, internalized standards or values, and a factor of behavioral ratings. (It might be noted here that when the rater variables are

excluded from the factor analysis, a three-factor solution is obtained which extracts the same first three factors identified here, but with higher loadings on the salient variables and corresponding greater contributions to total variance from the three factors than in the solution including the behavioral ratings.) It was also demonstrated in several comparative analyses that using Hunt's measure in combination with a measure of verbal intelligence would be an effective way of classifying youths for I-level, with little, if any, corresponding loss of predictive power.

What becomes apparent when the results of these analyses are considered together is the consistent manner in which intelligence (both verbal and performance) and cognitive complexity either covary with one another in accounting for group differences, or alone are fairly powerful predictors of I-level classification. In the discussion above some theoretical and empirical evidence was offered to explain why these strong relationships would occur. The inevitable logical conclusion, however, is that a practical alternative to the I-level diagnostic interview for procuring I-level classifications, would be the use of perhaps a combination of validated measures of verbal and performance intelligence and cognitive complexity.

Considering what is involved in the I-level interview, at first glance this conclusion would seem practically irrefutable. A trained I-level diagnostician initially spends an average of an hour-and-a-half in an intellectually demanding interview situation in which the task is to

determine the perceptual level and characteristic response style (I-level and subtype) of the youth being classified. The interview is tape-recorded and diagnosed by a second trained rater who then shares his diagnostic impressions with the interviewer. If disagreement exists in the two diagnoses, the usual procedure is for both raters to re-listen to the interview in an attempt to resolve their differences. The diagnostic process itself for each youth, then, requires at least three hours of trained staff time, and may demand as much as six hours in some cases. As might be expected, the training required to reach an acceptable level of diagnostic accuracy or reliability is necessarily long and costly in staff time and energy. Warren and her staff at the Center for Training in Differential Treatment in Sacramento recommend an initial intensive five-week training course in I-level theory, diagnosis, and treatment, followed by 30 to 50 additional interviews as the minimal requirement for becoming a proficient I-level diagnostician.

This description of what is involved in arriving at an interview I-level diagnosis in combination with the suggestion that equally discriminative diagnostic distinctions could be derived by group administration and simple scoring of several measures of I.Q. and cognitive complexity, provides a rather dramatic picture of the issues involved here. Clearly the question becomes: Why would anyone continue to use the former procedure when the

latter has been satisfactorily demonstrated to classify at least as well?

In the working draft of a paper on the advantages and disadvantages of two current systems for classifying the juvenile offender, presented to agencies within the Colorado Division of Youth Services, the present writer emphasized the point that "in deciding upon which measures one wants to use in gathering data for diagnostic purposes, it is first necessary to ask what kind of information is needed for what specific reasons (Miller, 1972, p. 16)." The example was offered of the situation where an agency staff makes the decision that they want to classify their intake population in ways which will provide groupings for the effective management of wards within an institutional setting. It was noted that the amount and type of information needed in this situation would probably be quite different, for instance, from the information needed by a different agency where it is decided to classify youths into groups that would maximize the effectiveness of intensive treatment, on a long-term basis, in the community.

This point is obviously relevant to the present discussion. While one common product of both the I-level interview and the alternate much simpler, less costly procedure suggested here would be the I-level diagnosis, the amount and kind of information obtained in the process of procuring the diagnosis would differ substantially for each method. The alternate method would also provide an intelligence quotient, an indicant of level of cognitive

complexity, and perhaps some additional scores of mechanical-spatial-practical abilities. In contrast, the I-level interview, in the process of determining a diagnosis, elicits a wide range of content within a large number of areas related to each youth (e.g., family, peers, school, reasons for delinquency, goals, self-concept, etc.), expressed in the youth's own idiosyncratic style and from his own frame of reference. These differences between the two diagnostic methods regarding the end-products obtained are certainly not necessarily good or bad in and of themselves. Rather, again, the point for emphasis is that the method chosen should directly reflect the determination of what data are needed to optimize the probabilities for meeting the specified goal(s) of a specified program in the most efficient way possible.

Some additional practical considerations inherent in this choice of methods would necessarily involve questions of staff availability and limitations, as well as size of intake load (i.e., is it necessary for us to be able to classify groups of youths at one time, or is it possible and feasible for us to do individual evaluations?; how much time (actual hours) can we devote to procuring a diagnosis for each individual?; how much time and money can we afford for training, etc.?).

It is the experience of the writer that most I-level treatment agents would probably argue that they need the additional and varied information elicited in the interview

in order to develop and implement an individualized treatment plan for each youth, and that having only an I-level diagnosis and an intellectual-cognitive assessment would not be sufficient. Thus, they probably would categorically reject the suggestion to utilize the alternative method to classification offered here. A rejection of the alternative method is certainly justifiable if the decision to do so is rigorously assessed within similar guidelines as those noted immediately above. However, having developed individualized treatment plans based on information obtained from the I-level interview, and then working with juvenile offenders within the I-level treatment model, the present writer seriously doubts that this argument for not using the alternate method of diagnosis could be empirically substantiated. This is not to say that the I-level treatment model is invalid or ineffective for working with youth offenders. Rather, it is suggested that the additional information gained from the interview probably contributes nonsignificantly to successful treatment outcome with these youths, and that whatever treatment gains were identified would be shown to be a factor of the differential treatment strategies developed from knowledge of the I-level diagnosis alone. Of course another possibility is that when the data from definitive I-level treatment outcome studies are in, the Devil will rise from his resting place and smile with the knowledge that intelligence effectively explains the differential results.

Directions for Further Research

In stating above that the present results had validated I-level theory for certain constructs and not for certain others central to its formulation, a qualifier was added which noted that all of the measures used which clearly validated the theory also correlate fairly highly with intelligence. Similarly, all of the strictly non-intellectual behavioral tests used were shown to be mostly unproductive for additional validation of the theory. It is suggested, then, that further research in this area should strive for operations to test the validity of I-level that are less correlated with or mediated by intelligence. Such an effort would provide a more definitive test of the theory, and would consequently allow for more definitive statements regarding its validity.

In addition, I-level theory is said by its proponents to be a theory of personality development in general, with applications for delinquency. In other words, the levels within I-level theory putatively pertain to the entire normal population, while the subtypes within the levels have been derived from observations of the population of juvenile offenders. In a certain sense, then, it could be said that the present study has not satisfactorily demonstrated the validity of this theory, since the population sampled represents a relatively specific and limited sub-grouping of the total population which the theory purports to describe. A crucial next step in the

validation of I-level theory, therefore, would be either to replicate the present study or design a somewhat similar one to investigate the validity of I-level with a non-delinquent adolescent population. To this point, I-level research has been performed exclusively with juvenile offenders and no evidence of its supposed relevance to the normal population has been demonstrated.

Chapter VII

SUMMARY

The Interpersonal Maturity Level (I-level) Classification System has been in use for a number of years to classify juvenile offenders for the purpose of differential treatment. While predictive research had been conducted for assessing the effectiveness of the differential treatment strategies applied as a result of I-level classification, little effort had been directed toward validating the actual theory underlying the classifications. The present study, then, was designed and carried out to investigate the construct validity of I-level theory.

Six measurable constructs were determined to be among those central to the theory: cognitive complexity, internal-external locus of control, internalization of standards or values (internalized guilt), delay of gratification, impulse control, and foresight or the ability to plan behavior. A total of 138 subjects obtained from three correctional settings were divided into groups on the basis of their I-level classification, yielding the following three groups: 15 youths diagnosed as functioning at Level 2 (I-2), 55 youths at Level 3 (I-3), and 68 at Level 4 (I-4). These subject groups were used in the majority of analyses which tested the following hypotheses:

Youths at higher levels of interpersonal maturity:

- 1) are more internally oriented in relation to control of their lives, i.e., they are more inclined to interpret important reinforcements as consequences of their own behavior rather than due to extrinsic factors in the environment;
- 2) are more cognitively complex than those at lower levels of development;
- 3) have internalized their own standards and values and therefore experience greater internalized guilt than youths at lower levels;
- 4) have greater impulse control than youths at lower levels of development;
- 5) are more able to delay gratification than youths at lower levels;
- 6) possess greater ability to exercise foresight and plan behavior; in addition,
- 7) there is a significant positive relationship between I-level diagnosis and verbal intelligence;
- 8) there is a significant positive relationship between I-level diagnosis and non-verbal intelligence;
- 9) Devil's Advocate Hypothesis: When systematic group differences in intelligence are controlled by matching or statistical procedures, all of the differences predicted in the first six hypotheses disappear.

Analyses of variance were used to initially test these eight principal hypotheses. The results confirmed

that youths at higher levels of interpersonal maturity are more cognitively complex (as measured by Hunt's Paragraph Completion Method), have greater impulse control (as measured by the Porteus Mazes Q Score), and possess greater ability to exercise foresight and plan behavior (as measured by the Porteus Mazes TQ Score). At the same time, a highly significant positive relationship was found to exist between I-level and both verbal and non-verbal (performance) I.Q. (as measured by the WISC).

On the other hand, the hypotheses were not confirmed that youths at higher levels of interpersonal maturity are more internally oriented in relation to control of their lives (as measured by the Rotter I-E Scale), or that they experience greater internalized guilt (as measured by the Mosher Guilt Scale). Delay of gratification (as measured by Feather's Choice-of-Prizes Test) showed a slight tendency to be related to I-level, however, the small number of subjects available on this measure in one of the groups (I-2), made it difficult to consider these results as additional validation for I-level theory.

Alternate measures of cognitive complexity, locus of control, and internalized guilt used in the study were behavioral ratings of these constructs obtained from house-parents, cottage counselors, and caseworkers who were familiar with the youths included for study. Analyses of variance of these ratings showed highly significant relationships between all three of these constructs and

I-level classification, however, multitrait-multimethod matrix analysis pointed to the extremely low discriminant validity of the behavioral ratings. Subsequent analyses were performed to remove the effects due to the raters' preference or personal liking for the youths, as well as the effects due to intelligence and level of cognitive complexity, in order to assess the basis for the rater judgments and their lack of discriminant validity. From these analyses it was concluded that the rating data supported the validity of I-level theory in a general way because the correlations were not artifactual, but hardly indicated much specific validity for the constructs under consideration.

In the test of the Devil's Advocate hypothesis, differences across groups in intelligence were removed from the data, with the result that each of the relationships between cognitive complexity, impulse control, and foresight and I-level continued to be significant. Thus, this hypothesis was not confirmed. It is necessary to point out, however, that all of the measures in this study that validated I-level theory (Hunt's sentence completion test, Porteus mazes Q and TQ scores) substantially reflect intelligence, which leads to an emphasis of the cognitive aspects of I-level classification, as contrasted with the interpersonal and characterological aspects featured by the system's architects.

A discriminant function analysis of the data indicated that of all the variables included for study, Hunt's measure of cognitive complexity was the best single predictor of I-level classification, accounting for 80 per cent of the total variance. Factor analysis of the data revealed four major factors operating within I-level classification in this study: general intelligence, spatial-practical-mechanical intelligence, internalized standards or values, and a factor of behavioral ratings. Comparative analyses indicated that using a combination of measures of intelligence and cognitive complexity would provide a more parsimonious and equally powerful predictor of I-level classification as the standard I-level diagnostic interview.

These results were discussed in terms of the measures used (particularly emphasizing the difficulties with forced-choice instruments in measuring internal constructs), some implications for I-level theory as an example of the cognitive-developmental approach to socialization (suggesting that cognitive complexity is a necessary, but not sufficient, condition for interpersonal maturity development), and some practical implications for the use of alternate measures to I-level classification, noting that what method of diagnosis is used depends largely on the amount and kind of information needed to optimize the probabilities for meeting the specified goal(s) of a specified program. Suggested directions for further research included searching for operations to test the validity of I-level which are not correlated with or

mediated by intelligence, and also the necessity for designing and performing studies to investigate the validity of I-level theory with a non-delinquent adolescent population.

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APPENDIX A

Integration-Level Interview Schedule

INTEGRATION-LEVEL INTERVIEW SCHEDULE

- I. Expectation of Youth Authority
1. What do you think it's going to be like in the Youth Authority?
 2. What have you heard about it?
 3. How do you feel about being sent here?
 4. What do you think they are trying to do to (for) you?
 5. What should they be trying to do?
- II. Attitudes toward offense and detention
1. How did you happen to get in trouble?
 2. What kind of boys (girls) do you like to be around in here? Why?
 3. What kind do you stay away from? Why?
 4. What staff people do you like to be around? Why?
 5. What staff people do you avoid? Why?
- III. Family (Parents, siblings, wife, etc.)
1. How do your folks feel about your trouble?
 2. How do you feel about their reactions?
 3. Do they hold it against you?
 4. Do you want them to visit you? Will they?
- IV. Attitudes toward father (or substitute)
1. What kind of man is your father? What is he like? How did you feel about him when you were growing up? How do others feel about him?
 2. What do you admire most in your father?
 3. What do you dislike the most? (Or like least?)
 4. How do you feel about his discipline?
 5. What do you figure makes him tick?
 6. Do you think you take after him? How are you different from him? Are you influenced by him in any way? Why?
 7. Who do you take after in your family?
 8. What are his ideals? What does he believe in?

V. Attitudes toward mother (or substitute)

1. What kind of a woman is your mother? What's she like?
2. What do you admire most in your mother?
3. What do you dislike most? (Or like least?)
4. How do you feel about her discipline?
5. What do you figure makes her tick?
6. Do you think you take after her? Or are you influenced by her in any way? Why?
7. What are her ideals? What does she believe in?
8. Has your attitude toward either parent changed in any way? How?

VI. Handling problem and affectivity

(Whenever you get strong feelings from the subject in any area, ask him how he thinks other people feel about it.)

1. Are you the sort of person who gets strong feelings about things or would you say you are more easy-going?
2. What happens when you have strong feelings?
3. How about when you really get angry at someone? (Do you hold a grudge?)
4. What do you do when you really feel blue or down in the dumps?
5. What usually makes you feel that way?
6. Have you ever been really happy?
7. What made you feel that way?
8. How do you express it?
9. Do you remember the time you were the most frightened?
10. Are there things that still frighten you as an adult?
11. What do you usually do when you get into a tight spot?
12. What happens when you get real upset?
13. How do you go about getting people to do things for you?
14. Do you drink? How much? How often?
15. How do you act when you've had a lot to drink?
16. What do you get out of drinking?
17. Do you see the drinking as a problem to yourself? To others?
18. What do you consider your strong points? (Pressure)

19. What are the things about yourself that you don't like?
(Pressure)
20. What do you usually do about them?
- VII. Self
1. What kind of person are you? Describe yourself as a third person would.
- VIII. Work and/or school and future
- (Try to establish reality of plans.)
1. Are you the type that like to plan for the future or take things as they come? Why?
2. How do you feel about going to school? Why?
3. What do you like about school (most, least)?
4. What kind of teachers are best? Worst?
5. What do you want to be when you are grown?
6. How can you make this possible?
7. What kinds of work have you done?
8. Did you like it? Why? Why not?
9. Would you rather work or go to school?
- IX. Friends and others
1. How important do you think friends are? Why?
2. What sort of people do you prefer as friends? Why?
3. How do you go about choosing a friend?
4. When you meet somebody for the first time, what things about him would make you want him for a friend?
5. What kind of people do you find objectionable? Why?
6. When you meet a person, what things would make you dislike him?
7. Are there lots of people you dislike?
8. Do you have a large or small group of friends?
9. Do you have any especially close friends?
10. Are some of your friends closer friends than others, or are they all about the same? What makes the difference whether a person is a close friend or just an average friend? Is it just a matter of how long you have known him?

11. Have you made any friends since you've been here? (Location)
12. Do you think you will make friends here?
13. What kind of people do you most admire? Wish to be like? Ever have a hero?

X. Girlfriends,
boyfriends,
dating

1. How about women (men)? How do you feel about them?
2. What kind of girl (boy) do you like most?
3. What kind of girl (boy) don't you like?
4. How important do you feel dating is?
5. How will you feel about being away from girls (boys) while you are in Youth Authority?

XI. Marriage

(Handle this area especially according to age level.)

1. How do you feel about marriage? (Your parents' marriage?)
2. How do your parents get along with each other?
3. What about marriage for yourself?
4. How would you run a family?
5. What should a husband do for his family?
6. What should a wife do for her family?
7. Who should discipline the kids?
8. How about working wives?
9. Where have you gotten your ideas about marriage?
10. What do you think is the most important in making a marriage work?

XII. Present mental health

1. How has your health been recently?
2. How do you sleep nights? Any trouble getting to sleep?
3. Do you have any dreams or nightmares?
4. Have you been nervous or upset very much? Do you consider yourself to be a nervous person?

XIII. Maturity

(If he says he's not mature, ask in what ways he is.)

1. What do you consider to be a mature adult, grown-up person? How would you describe him?
2. How can you tell what a mature person is like? (Get specific behavioral details.)
3. How does a mature person get that way?

4. Do you consider yourself mature?
5. In what ways do you consider yourself not mature? (Elaborate)
6. How important is it to be mature?
7. How about change? Why? Do people ever really change once they are adults? How about you? (Get details.)

XIV. Interview

1. We've talked a great deal about the way you feel about various people and things. I wonder if we could spend some time discussing your feelings about what we were doing. What did you think as we were talking?
2. How did you feel? (Elaborate)
3. Any questions make you feel uncomfortable?
4. How did you want the interview to go?
5. What was the point of the interview? What did we seem to be after?
6. How did I seem to be feeling during the time? Why was that?

XV. Interviewer's impression

(To be dictated after subject's departure)

1. How did he behave? (Elaborate postural cues, amount of psychomotor activity, tics, mannerisms, restlessness, etc.)
2. How did the interviewer feel? (Did he feel as though he were pulling teeth, relaxed, warm feelings, angry, comfortable, uncomfortable, etc.)
3. What are your immediate impressions of this person's "I" level? Why?

APPENDIX B

Rating Scales of Youths' Internal-External Focus

RATING SCALES OF YOUTHS' INTERNAL-EXTERNAL FOCUS

1. This youth feels that no matter what he (she) does, it won't make any difference because powerful forces or other people control his (her) life anyway.

not at all hardly somewhat quite extremely

2. This youth feels that there are any number of alternatives available to him (her) in deciding the direction of his (her) own life.

not at all hardly somewhat quite extremely

3. This youth seems to feel that everything that happens to him (her) is the result of luck, chance, or fate.

not at all hardly somewhat quite extremely

4. This youth behaves as if he (she) is completely at the mercy of others around him (her).

not at all hardly somewhat quite extremely

APPENDIX C

Rating Scales of Youths' Cognitive Complexity

RATING SCALES OF YOUTHS' COGNITIVE COMPLEXITY

1. This youth would be able to understand me even if I talked about some rather complicated areas.

not at all hardly somewhat quite extremely

2. This youth appears to be spontaneous and flexible in his (her) approach to solving problems.

not at all hardly somewhat quite extremely

3. This youth needs to have things spelled out for him (her) over and over again before he (she) is able to grasp what is being said.

not at all hardly somewhat quite extremely

4. This youth seems to be limited in his (her) ability to see alternative ways of dealing with various situations.

not at all hardly somewhat quite extremely

APPENDIX D

Rating Scales of Youths' Internalized Guilt

RATING SCALES OF YOUTHS' INTERNALIZED GUILT

1. When this youth commits a wrong act, he (she) feels genuinely miserable inside.

not at all hardly somewhat quite extremely

2. If this youth were certain he (she) would not get caught, he (she) would not hesitate to steal some money that was lying on a nearby table.

not at all hardly somewhat quite extremely

3. This youth refrains from wrong doings only because he (she) is afraid of being punished.

not at all hardly somewhat quite extremely

4. The actions of this youth seem to be guided by his (her) own standards and values.

not at all hardly somewhat quite extremely

APPENDIX E

Rating Scale of Attitude of Worker Toward Youth

RATING SCALE OF ATTITUDE OF WORKER TOWARD YOUTH

Compared with other youths I have worked with, I feel a great deal of attachment and affection for this particular youth.

not at all

hardly

somewhat

quite

extremely

APPENDIX F

Initial Instructions to Subject Groups

INITIAL INSTRUCTIONS TO SUBJECT GROUPS

"This is a study to try to find out what opinions and beliefs young people in institutions have about certain things. Your answers will be held confidential and no one here at the school (Receiving Center) will see your individual responses or papers. Please be as honest and as serious as you possibly can. You will be paid \$2.00 for participation in this study, which will take place in two parts. The second part will be a week from today and will take only about ten minutes of your time."

APPENDIX G

Rotter Locus of Control (I-E) Scale

ROTTER LOCUS OF CONTROL (I-E) SCALE

NAME: _____

DATE: _____

GROUP: _____

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

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

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars, not matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in the world.
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6.
 - a. Without the right breaks one cannot be an effective leader.
 - b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7.
 - a. No matter how hard you try some people just don't like you.
 - b. People who can't get others to like them don't understand how to get along with others.
8.
 - a. Heredity plays the major role in determining one's personality.
 - b. It is one's experiences in life which determine what they are like.
9.
 - a. I have often found that what is going to happen will happen.
 - b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10.
 - a. In the case of the wellprepared student there is rarely if ever such a thing as an unfair test.
 - b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11.
 - a. Becoming a success is a matter of hard work; luck has little to do with it.
 - b. Getting a good job depends mainly on being in the right place at the right time.
12.
 - a. The average citizen can have an influence in government decisions.
 - b. This world is run by the few people in power, and there is not much the little guy can do about it.
13.
 - a. When I make plans, I am almost certain that I can make them work.
 - b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14.
 - a. There are certain people who are just no good.
 - b. There is some good in everybody.
15.
 - a. In my case getting what I want has little or nothing to do with luck.
 - b. Many times we might just as well decide what to do by flipping a coin.
16.
 - a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 - b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
b. By taking an active part in political and social affairs the people can control world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
b. There really is no such thing as "luck."
19. a. One should always be willing to admit mistakes.
b. It is usually best to cover up one's mistakes.
20. a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends upon how nice a person you are.
21. a. In the long run the bad things that happen to us are balanced by the good ones.
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. a. With enough effort we can wipe out political corruption.
b. It is difficult for people to have much control over the things politicians do in office.
23. a. Sometimes I can't understand how teachers arrive at the grades they give.
b. There is a direct connection between how hard I study and the grades I get.
24. a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what their jobs are.
25. a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.
26. a. People are lonely because they don't try to be friendly.
b. There's not much use in trying too hard to please people; if they like you, they like you.
27. a. There is too much emphasis on athletics in high school.
b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.
b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29.
 - a. Most of the time I can't understand why politicians behave the way they do.
 - b. In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX H
Mosher Guilt Scale

MOSHER GUILT SCALE

Name _____

Age _____

This questionnaire consists of a number of pairs of statements or opinions which have been given by college men in response to the "Mosher Incomplete Sentences Test." These men were asked to complete phrases such as "When I tell a lie . . ." and "To kill in war . . ." to make a sentence which expressed their real feelings about the stem. This questionnaire consists of the stems to which they responded and a pair of their responses which are lettered A and B.

You are to read the stem and the pair of completions and decide which you most agree with or which is most characteristic of you. Your choice, in each instance, should be in terms of what you believe, how you feel, or how you would react, and not in terms of how you think you should believe, feel, or respond. This is not a test. There are no right or wrong answers. Your choices should be a description of your own personal beliefs, feelings, or reactions.

In some instances you may discover that you believe both completions or neither completion to be characteristic of you. In such cases select the one you more strongly believe to be the case as far as you are concerned. Be sure to find an answer for every choice. Do not omit an item even though it is very difficult for you to decide. Just select the more characteristic member of the pair. Encircle the letter, A or B, whichever you most agree with.

1. When I tell a lie . . .
 - A. it hurts.
 - B. I make it a good one.
2. To kill in war . . .
 - A. is a job to be done.
 - B. is a shame but sometimes a necessity.
3. Women who curse . . .
 - A. are normal.
 - B. make me sick.
4. I punish myself . . .
 - A. for the evil I do.
 - B. very seldom for other people do it for me.
5. Obscene literature . . .
 - A. is sinful and a corrupt business.
 - B. is fascinating reading.
6. I detest myself for . . .
 - A. my sins and failures.
 - B. for not having more exciting sexual experiences.
7. I punish myself . . .
 - A. never.
 - B. by feeling nervous and depressed.
8. When I tell a lie . . .
 - A. I'm angry with myself.
 - B. I mix it with truth and serve it like a Martini.
9. One should not . . .
 - A. knowingly sin.
 - B. try to follow absolutes.
10. I detest myself for . . .
 - A. nothing, I love life.
 - B. not being more nearly perfect.
11. Obscene literature . . .
 - A. should be freely published.
 - B. helps people become sexual perverts.
12. I regret . . .
 - A. my sexual experiences.
 - B. nothing I've ever done.
13. A guilty conscience . . .
 - A. does not bother me too much.
 - B. is worse than a sickness to me.

14. I regret . . .
 - A. getting caught, but nothing else.
 - B. all of my sins.
15. When I tell a lie . . .
 - A. my conscience bothers me.
 - B. I wonder whether I'll get away with it.
16. When caught in the act . . .
 - A. I try to bluff my way out.
 - B. truth is the best policy.
17. When I tell a lie . . .
 - A. it is an exception or rather an odd occurrence.
 - B. I tell a lie.
19. Sin and failure. . .
 - A. are two situations we try to avoid.
 - B. do not depress me for long.
20. If I robbed a bank . . .
 - A. I would live like a king.
 - B. I should get caught.
21. Sin and failure . . .
 - A. are the works of the Devil.
 - B. have not bothered me yet.
22. I tried to make amends . . .
 - A. for all my misdeeds, but I can't forget them.
 - B. but not if I could help it.
23. I detest myself for . . .
 - A. nothing, and only rarely dislike myself.
 - B. thoughts I sometimes have.
24. Arguments leave me feeling . . .
 - A. satisfied usually.
 - B. exhausted.
25. When someone swears at me . . .
 - A. I swear back.
 - B. it usually bothers me even if I don't show it.

APPENDIX I

Hunt Paragraph Completion Measure and Instructions
(Cognitive Complexity)

HUNT PARAGRAPH COMPLETION MEASURE AND INSTRUCTIONS
(COGNITIVE COMPLEXITY)

Name _____ Male _____ Female _____
Grade in school _____ Age _____

On the following pages you will be asked to give your ideas about several topics. Try to write at least three sentences on each topic.

There are no right or wrong answers, so give your own ideas and opinions about each topic. Indicate the way you really feel about each topic, not the way others feel or the way you think you should feel.

You will have about 3 minutes for each page.

Please wait for the signal to go to a new page.

1. What I think about rules . . .

Try to write at least three sentences on this topic.

WAIT FOR SIGNAL TO TURN PAGE

2. When I am criticized . . .

Try to write at least three sentences on this topic.

WAIT FOR SIGNAL TO TURN PAGE

3. What I think about parents . . .

Try to write at least three sentences on this topic.

WAIT FOR SIGNAL TO TURN PAGE

4. When someone disagrees with me . . .

Try to write at least three sentences on this topic.

WAIT FOR SIGNAL TO TURN PAGE

5. When I am not sure . . .

Try to write at least three sentences on this topic.

WAIT FOR SIGNAL TO TURN PAGE

6. When I am told what to do . . .

Try to write at least three sentences on this topic.

APPENDIX J

Feather Choice-of-Prizes Test and Instructions

FEATHER CHOICE-OF-PRIZES TEST AND INSTRUCTIONS

At the end of the first session each subject was individually called into an office and given a card of the following description:

<u>FIRST CHOICE</u>			<u>SECOND CHOICE</u>	
First Week:	\$.75		First Week:	\$.25
Second Week:	<u>\$1.25</u>	<u>or</u>	Second Week:	<u>\$2.00</u>
Total	\$2.00		Total	\$2.25

Instructions:

"You probably remember being told that you will be paid for helping out with this study. That is true but I am going to pay you in two parts rather than all at once. I want you to look at this card and decide how you want to be paid. You will notice that you have two choices. The first choice is to take \$.75 right now and get \$1.25 next week, when I see you again, for a total of \$2.00. The second choice is to take \$.25 right now and \$2.00 next week, for a total of \$2.25. Which choice do you want?"

APPENDIX K

Instructions for the Porteus Mazes Test

INSTRUCTIONS FOR THE PORTEUS MAZES TEST

"This is what is called a maze and you must draw with your pencil like this." (Examiner takes the pencil and draws about 1.5 inches of the course from the starting arrow near the rat to around the first turn.) "These lines are all supposed to be walls and this rat went in here (indicating arrow) to try and get some cheese." (Point to cheese at end of maze.) "Now I want you to draw a line showing me where the rat went to find the cheese. But you must be very careful not to cross any lines or to go into any place that is blocked at the other end. If you go into any blocked place, you cannot turn around and come out. You must start all over again with a new maze.

One more thing you must remember--this is not a speed test and you can stop anywhere and look as long as you like while you decide which way to go, but try not to lift your pencil off the paper until you are right outside the maze. Start as soon as you are ready."

Testing is continued until all the designs of a series have been successfully worked through within the allowable number of trials. At any point where a subject draws through an imaginary line across the entrance to a blind street or alley, the design is removed and an "unsuccessful trial," not a failure, is recorded. Failure is recorded only if this takes place after the number of trials allowed in the rules has occurred--two in each test design up to and including Year XI, four in the XII, XIV, and Adult mazes.

Testing and scoring normally cease after three failures anywhere in the series have been recorded, or two successive failures in Year XI or above.

APPENDIX L

Summary of Original and Partial Correlation Coefficients
of I-Level with Dependent Variables with
Age, Sex, and Ethnic Background Removed

SUMMARY OF ORIGINAL AND PARTIAL CORRELATION COEFFICIENTS
 OF I-LEVEL WITH DEPENDENT VARIABLES WITH
 AGE, SEX, AND ETHNIC BACKGROUND REMOVED

<u>Dependent Variables</u>	<u>Original</u>	<u>Partial</u> (Age, Sex, Race)
1. Verbal I. Q. (WISC)	.58	.45
2. Performance I. Q. (WISC)	.53	.41
3. Locus of Control (Rotter)	-.15	-.22
4. Internalized Guilt (Mosher)	.05	.02
5. Cognitive Complexity (Hunt)	.50	.40
6. Foresight (Porteus T. Q.)	.32	.23
7. Impulse Control (Porteus Q)	-.37	-.26
8. Delay of Gratification (Feather)	.15	.17
9. Rated Locus of Control	-.40	-.33
10. Rated Cognitive Complexity	.42	.34
11. Rated Internalized Guilt	.28	.20

APPENDIX M

Jane Loevinger on Factor Analysis and Personality Research

JANE LOEVINGER ON FACTOR ANALYSIS AND PERSONALITY RESEARCH

How can we discover what are the major variables and what are their subsidiary manifestations? What gives us the order of importance? Many psychologists have become accustomed to thinking that there are tools available to help with these decisions. In particular, factor analysis is the instrument advocated by many as the sure way to find our major variables. It is important to note that precisely the distinction at issue, that between polar variables and milestone sequences, is one to which factor analysis is blind. If we begin by taking as our quantitative variables separate aspects of several stages of the ego, the milestones, no kind of computational manipulation by however high speed a machine will sort them out to reconstruct the concept of ego level presented here. A considerable number of people have arrived at some version of this concept, but no machines. (Or rather, people without computers have discovered this concept, but not those using computers.) If we are operating in such studies with a series of quantitative measures of ego milestones, one would expect a melange of low and curvilinear relations--precisely what is usually observed.

With respect to ego level, it seems to be the case that those manifestations observable at a minimal inferential level are just the milestones, while the polar aspects, properly treated as quantitative, are only inferable directly from patterns of observed behavior. Thus the ultra-behaviorist is doomed to deal in trivialities in the personality field, for he approaches the area with a predilection at once for observing behavior at a minimal inferential level and for quantitative variables. But this is a contradiction; what can be observed most directly are the milestones rather than the quantitative aspects. This is the behaviorist's dilemma, and a possible explanation for much of the frustration and confusion that have beset personality measurement (1966, p. 204).

APPENDIX N

Description of the Seven Levels of I-Level Theory

DESCRIPTION OF THE SEVEN LEVELS OF I-LEVEL THEORY

Level 1: The Integration of Separateness

At this level the discrimination of differences between self and non-self occurs. As an infant, there is little awareness of differences between self and the world, but the child gradually becomes aware as he or she cannot reduce tension without interactions with things or people outside him or herself. This differentiation is a gross one with people and objects seen as relievers of tension. An adult operating at this level would appear to act as if he or she were the whole world. Basically this would be a rather schizoid adjustment in the sense that it takes gross distortions of reality to maintain this concept of self. The level 1 individual is non-comprehending of environmental influences and his or her role in them.

Level 2: The Integration of NonselF Differences

The differentiation of the environment into persons and objects occurs at this level, with some appreciation of the characteristics of each. Having become aware of the distinction of self and nonselF, the developing personality becomes concerned with the problem of how to handle the rest of the world. At this primitive level of differentiation, response value is still closely linked in the child's mind with the stimulus value of objects. Through a procedure of trial and error, she finds those who meet her particular needs, and people are seen in terms

of whether they are "givers" or "deniers." An adult operating at Level 2 faces life with apparent trust, expecting the world to be composed of givers and functioning fairly well as long as this is true. In his or her need to master objects and people, he or she frequently falls into crude, transparent attempts at manipulation. The typical response to denial or even slight pressure is "flight or fight." The Level 2 person has poor capacity to explain, understand, or predict the behavior or reactions of others. He or she is not interested in things outside himself except as a source of supply. He or she behaves impulsively, unaware of anything except the grossest effects of his behavior on others (Warren, 1967).

Level 3: The Integration of Rules

Level 3 includes the perception of rules or formulae governing the relationships between people and objects with a beginning awareness of potential for complex manipulation. Now the child begins to find relationships more complex. This discovery is initiated by contact with the formulae or expectancies governing the relationships between people and objects. Not only must he or she be in contact with someone in order to meet satisfactions, but that necessary person must also be able to have the power to do this. The child is taught both explicitly and implicitly that definite rules govern the relationships between people and objects, and that these rules seem to control "big" people. An adult operating at this level is ruled by the premise that

the world is a series of rigidly organized, rule-bound relationships, and is concerned with what he or she must do so that he or she can make people respond positively. More than the I-2, the I-3 person does understand that his or her own behavior has something to do with whether or not he or she gets what he or she wants. This person does not operate from an internalized value system but rather seeks external structure in terms of rules and formulas for operation. His or her understanding of formulas is indiscriminate and oversimplified. The I-3 person perceives the world and his or her part in it on a power dimension. Although he can learn to play a few stereotyped roles, he cannot understand many of the needs, feelings, and motives of another person who is different from himself. He is unmotivated to achieve in a long-range sense, or to plan for the future (Warren, 1967). Many of these features contribute to his inability to accurately predict the response of others to him.

Level 4: The Integration of Conflict and Response

At this level the perception of the influence and psychological force of others occurs. The child is now prepared to see himself in new, more objective terms. His behavior is primarily influenced by his own needs, but he is also aware of the influence of others and of their expectations of him. At this point, social anxiety begins to emerge as a motivating force. He may assume the attitudes characterizing another person or may use the

gestures another uses, and others respond to these gestures and attitudes. Role-playing is a safe kind of practicing, leading to a greater differentiation and social interaction. Having globally accepted what others feel as being right and wrong, the child is caught in the conflict of wanting to be like significant others, and wanting to give expression to his own needs. Further, because of his own participation in the roles, some internalization has taken place, and when he fails to live up to these new standards, he feels guilty and self-critical. The adult who functions at this level is often plagued by anxiety and guilt regarding his global concepts of good and bad. He frequently finds himself in conflict situations because he is caught between two incompatible ideals or goals, both of which seem equally important. He is said to closely resemble the "authoritarian" personality; he is rather tense, suspicious, bewildered, sometimes hostile, and always anxious--a person caught in a struggle with new and socially determined feelings of guilt.

Level 5: The Integration of Continuity

At this level is found the perception of stable action patterns in self and others. As the person begins to solve some of the conflicts inherent in the very roles he has taken over, he begins to perceive patterns of relationships and significant symbols identifying these relationships, and learns about distinctions obtaining in his own society. He becomes aware of continuity in his own life and in the lives of others, sensing a relationship in this continuity between

response in the past and response in the present and future. For the first time there is a noticeable appreciation for others as unit personalities and an understanding of what they do and feel. He begins to perceive others as complex, flexible people who cannot be dealt with on the basis of a few simple rule-of-thumb procedures. An adult operating at this level is free from some of the problems of an overly tense identification, and can deal with others without being submerged in them. He can enjoy people, be stimulated by them, and respond to them as individuals. He is not overly concerned by the fact that people change. He may be bothered by the incompatibility of the roles he plays, he may feel diffuse, wondering which of his roles is basic--which is the "real me."

Level 6: The Interaction of Self-Consistency

At this level the perception of differences between oneself and the social roles which one may play momentarily is found. The Level 6 person perceives that he need not become the role, but rather he may carry the role as a mode of response. Roles are defined at this stage in terms of relationships and interactions with others. The self is viewed as distinct and separate from any specific relationship with others. It involves intra-action. An adult at this level is relatively stable himself, and sees others as enduring, stable persons, since he knows the individual is more than his various roles and shifting behavior. A person functioning at this level may have situationally induced

anxiety concerning the welfare of himself and others, but the adjustive capacity inherent in this integration would almost preclude delinquent or criminal behavior.

Level 7: The Integration of Relativity, Movement, and Change

Here perception of integrating processes in self and others occurs. At Level 7 the person is not only aware of self and roles, but begins to comprehend focusing on integrating processes in himself and others. He sees a variety of ways of perceiving and integrating, some of which lead to more adequate expectations and hypotheses than others. This development greatly enhances his capacity for understanding and dealing with people who may be functioning at integration levels other than his own. Probably no one completes this stage in today's society.

(Adapted from Sullivan, Grant and Grant, 1957.)

APPENDIX O
Table of Raw Scores

TABLE OF RAW SCORES

In the table on the following pages, the numbered variables represent the following:

1. Verbal I.Q. (WISC)
2. Performance I.Q. (WISC)
3. Locus of Control (Rotter I-E Scale)
4. Internalized Guilt (Mosher Guilt Scale)
5. Cognitive Complexity (Hunt CC Measure)
6. Foresight (Porteus TQ)
7. Impulse Control (Porteus Q)
8. Delay of Gratification (Feather's Choice-of-Prizes Test)
9. Rated Locus of Control (Behavioral I-E Rating)
10. Rated Internalized Guilt (Behavioral IG Rating)
11. Rated Cognitive Complexity (Behavioral CC Rating)

SUBJECTS		VARIABLES										
		1	2	3	4	5	6	7	8	9	10	11
I-LEVEL 2		1										
1	82	11	88	11	-28	.33	126	31	1	12.3	8.3	7.6
2	80	7	89	7	-14	.66	102	43	2	14.3	8.3	4.0
3	77	10	83	10	3	.33	110	35	1	16.3	10.0	8.0
4	80	10	87	10	-19	.66	110	32	1	15.6	10.6	8.6
5	109	13	112	13	-2	1.00	102	28	1	13.0	10.6	11.6
6	79	17	87	17	-7	.66	74	45	1	14.3	7.6	8.6
7	64	13	55	13	11	0.00	102	60		17.5	9.5	9.0
8	91	14	96	14	32	.66	126	2		12.0	18.0	10.5
9	58	12	62	12	-5	1.00	126	11		12.0	11.0	8.0
10	71	13	61	13	14	0.00	132	9		14.5	10.5	10.0
11	76	11	66	11	5	0.00	94	28		13.5	11.0	10.5
12	60	14	57	14	-26	.66	82	41		11.5	11.0	12.0
13	71	8	63	8	-9	.66	102	63		12.5	12.0	11.5
14	69	14	72	14	-3	1.00	82	49		10.5	8.5	8.5
15	74	10	78	10	-20	.66	102	37		8.5	10.5	14.5
I-LEVEL 3												
16	91	16	108	16	-17	1.00	114	18	2	9.0	13.3	16.0
17	87	12	90	12	16	1.00	118	11	1	12.3	12.0	4.0
18	97	18	92	18	-8	1.33	132	11	1	12.6	12.3	11.0
19	94	8	99	8	23	1.33	126	9	1	11.3	13.0	9.6
20	85	17	110	17	-5	1.00	102	21	1	15.3	10.3	7.3
21	90	10	97	10	-1	1.33	122	11	2	14.0	12.0	11.3
22	86	8	76	8	3	1.00	70	34	2	16.3	10.0	5.6
23	82	17	100	17	-16	1.00	132	0	2	15.0	10.0	6.6
24	82	13	88	13	18	1.00	129	16	1	12.0	11.3	9.6
25	91	15	106	15	-5	1.33	114	10	2	18.3	12.0	6.3
26	79	13	80	13	8	1.00	74	47	2	16.6	10.6	6.6
27	85	9	117	9	-6	1.00	102	28	1	17.3	10.0	6.0
28	97	14	93	14	27	1.00	94	48	2	16.0	12.3	7.3
29	66	12	75	12	23	1.00	102	19	1	13.0	12.6	9.0
30	102	18	94	18	-13	2.00	114	17	1	12.0	11.3	10.3
31	81	11	97	11	40	1.00	98	17	1	12.0	13.0	10.3

SUBJECTS	VARIABLES										
	1	2	3	4	5	6	7	8	9	10	11
32	82	118	16	-22	1.00	102	30	2	14.6	11.3	11.0
33	85	93	16	-21	1.00	129	21	2	9.0	8.6	13.6
34	108	128	12	8	2.00	126	10	2	11.6	13.3	11.0
35	91	136	14	2	1.00	122	2	2	15.3	10.3	10.6
36	69	67	8	-16	.66	106	31	1	12.0	13.6	13.0
37	91	110	14	-6	1.33	118	14	2	13.6	10.0	10.6
38			11	10	1.00	102	30	2	12.0	8.6	8.0
39	79	86	9	20	1.00	102	37	2	14.3	7.0	6.3
40	72	90	5	3	1.00	102	11	2	12.6	12.0	10.6
41	70	72	9	25	1.00	94	38	2	15.0	9.6	7.3
42	88	86	8	21	1.00	122	16	1	13.3	12.6	8.3
43	76	80	10	8	1.00	129	24	2	12.3	12.3	12.0
44	90	113	11	-10	1.00	118	25	2	9.6	13.0	13.3
45	61	82	14	-12	1.00	135	0	1	8.3	15.3	15.0
46	84	73	12	-3	1.00	135	26	2	10.6	12.3	13.0
47			9	-1	1.00	118	21	1	10.6	10.6	11.3
48	85	90	6	1	1.00	102	26	2	11.3	10.6	14.0
49	93	94	8	-1	1.00	90	48	2	13.6	12.0	12.3
50	72	83	11	10	.66	126	36	2	14.0	7.3	7.0
51	69	86	8	-20	.66	129	10	2	8.3	15.6	14.0
52	73	80	12	-24	1.00	129	13	1	10.3	12.6	13.6
53			13	-10	.66	118	26	2	11.0	12.3	13.3
54	80	85	7	3	1.00	98	16	1	11.0	11.3	11.3
55	84	123	9	1	1.00	118	6	2	12.3	10.3	11.3
56			12	-26	1.00	102	38	1	13.6	9.6	7.0
57	74	80	10	-12	.33	98	30	1	9.0	11.3	15.0
58	93	99	9	7	1.00	86	51		12.5	11.5	10.0
59	69	55	11	-3	1.00	86	34		7.5	16.5	18.0
60	100	111	6	-15	1.33	129	9		7.0	15.0	17.0
61	86	96	9	-2	1.33	118	23		11.5	12.5	14.0
62	73	70	13	2	1.66	110	13		7.0	13.5	12.0
63	78	90	8	17	1.00	126	44		9.0	12.0	13.5
64	97	79	2	24	1.00	98	49		13.0	12.0	12.5

SUBJECTS	VARIABLES										
	1	2	3	4	5	6	7	8	9	10	11
65	82	92	8	20	1.00	132	26		8.0	15.0	13.0
66	69	70	12	13	1.00	114	11		13.5	10.5	10.0
67	94	80	9	-6	1.00	118	15		11.0	11.5	12.0
68	97	96	9	-6	1.33	110	38		11.0	10.0	8.0
69	94	98	9	-31	1.00	98	50		11.5	10.0	11.5
70	75	83	9	17	1.33	135	9		12.5	11.5	9.5
I-LEVEL 4											
71	105	113	11	-27	2.00	90	18	2	14.3	12.3	14.6
72	82	82	12	21	1.00	110	27	2	10.6	13.0	13.6
73	92	132	11	1	1.00	132	6	1	9.6	13.6	14.6
74	93	95	11	20	1.66	94	34	1	10.0	12.3	12.3
75	96	113	10	29	1.33	118	5	1	9.0	11.6	12.0
76	94	93	7	-9	1.00	122	14	2	16.0	11.3	10.0
77	98	100	17	-27	2.00	126	10	1	12.6	12.0	14.0
78	108	83	10	5	2.00	118	17	2	7.3	13.3	18.3
79	106	98	12	-7	1.33	106	26	1	9.6	14.3	14.3
80	93	116	9	-31	2.00	122	7	2	6.3	13.6	16.6
81	90	104	11	-3	1.00	126	5	2	11.3	11.6	11.0
82	99	110	10	13	.66	90	31	1	10.0	13.6	12.3
83	99	118	10	32	2.00	126	15	1	11.3	14.3	13.3
84	108	110	12	15	1.00	66	30	2	8.0	13.6	18.6
85	85	93	9	-13	1.00	126	8	2	15.3	10.0	11.3
86	99	103	1	27	1.66	132	3	1	5.3	13.6	18.3
87	90	107	12	4	1.33	129	5	1	12.0	13.6	13.3
88	79	92	11	22	1.00	106	9	1	10.3	13.3	12.0
89	96	121	8	-6	1.00	116	17	2	14.0	11.3	7.6
90	95	115	11	12	2.00	122	15	2	6.0	14.3	16.6
91	109	142	11	-15	2.00	129	7	2	13.0	11.0	11.6
92	89	107	13	9	1.66	132	7	1	9.6	14.6	12.6
93	111	120	14	25	1.66	114	13	2	9.0	14.6	14.6
94	97	115	11	23	2.00	114	15	2	10.3	14.0	12.3
95	102	119	6	24	1.66	110	17	1	10.3	12.0	11.6
96	101	118	10	7	1.00	102	26	2	10.3	13.6	13.0

SUBJECTS	VARIABLES										
	1	2	3	4	5	6	7	8	9	10	11
97	106	113	15	12	2.00	122	15	2	12.0	12.0	10.6
98	96	106	17	-25	.66	122	18	2	13.3	9.3	10.3
99	98	102	14	-23	1.00	122	19	2	10.6	12.0	12.0
100	82	93	7	-28	1.00	122	30	2	10.0	11.3	12.6
101	81	100	6	-35	1.33	132	21	2	11.0	11.0	11.6
102	85	93	18	-2	2.00	110	17	1	11.0	12.0	12.6
103	110	112	3	8	1.00	126	25	2	10.6	10.6	11.3
104	83	89	13	-9	1.33	126	20	2	9.6	9.0	14.6
105	89	98	18	-35	1.00	129	11	2	10.3	10.3	12.0
106	118	120	7	-8	2.00	135	4	2	12.0	11.6	12.0
107	117	120	8	-39	2.00	132	16	2	6.3	15.0	17.0
108	108	102	7	0	1.00	122	20	1	10.3	12.6	14.0
109	90	99	13	2	1.33	122	19	2	13.0	10.3	7.6
110	98	102	11	24	1.33	110	32	1	7.6	16.0	15.6
111	105	110	8	21	1.33	126	27	1	7.3	14.0	17.0
112	105	107	3	-5	1.00	114	17	2	9.6	13.0	12.6
113	102	106	17	-32	2.00	126	10	2	11.3	13.0	15.6
114	98	89	7	-9	1.00	106	24	1	10.6	12.0	11.6
115	100	102	16	4	2.00	98	31	2	15.6	12.6	9.6
116	89	100	11	21	1.00	132	5	2	10.3	13.3	13.6
117	102	105	10	2	1.33	94	21	2	10.0	10.0	10.0
118	78	99	5	12	1.00	132	5	1	7.0	17.3	18.6
119	105	121	15	-31	1.66	114	8	2	12.6	10.0	11.0
120	90	77	7	-24	1.66	118	30	2	9.0	11.6	13.3
121	87	86	8	1	1.33	114	17	2	13.0	10.3	11.0
122	90	95	11	-1	1.00	114	45	1	7.3	14.3	14.0
123	106	110	18	-4	1.33	126	9	1	11.0	10.3	12.3
124	105	100	10	0	1.66	122	20	2	9.3	12.6	14.6
125	105	109	8	15	2.00	118	32	1	11.0	14.0	14.0
126	87	97	10	-8	1.33	126	31	2	13.0	12.0	12.0
127	93	82	2	21	1.00	135	16	2	15.5	10.0	11.0
128	89	110	13	-20	1.00	118	15	2	9.0	14.0	15.0
129	109	111	2	16	1.66	132	2	2	8.0	10.0	17.0

SUBJECTS	1	2	3	4	5	VARIABLES						
						6	7	8	9	10	11	
130	121	100	0	29	2.00	126	9		9.5	14.0	15.0	
131	90	114	11	14	1.00	132	6		13.5	10.5	11.5	
132	74	89	11	-9	0.00	114	39		13.0	11.0	8.5	
133	81	88	15	-31	1.66	132	8		13.0	12.0	9.0	
134	96	101	5	7	2.00	118	10		12.0	11.0	11.0	
135	92	116	8	36	1.00	132	45		9.0	14.0	12.5	
136	107	104	6	-6	2.00	132	24		12.0	11.0	11.5	
137	126	111	11	-13	3.00	129	20		11.0	13.0	10.5	
138	87	93	9	7	1.00	129	19		10.0	12.0	14.0	

