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R. Miller, 1969

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IMPULSIVITY AND LOCUS OF CONTROL AMONG JUVENILE DELINQUENTS

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CHAPTER I

BACKGROUND OF THE PROBLEM

There have been several broad research approaches to the problem of delinquency. Sociologists have regarded the delinquent as a product of his culture and have pointed to a variety of conditions, many of which appear to be noteworthy in the etiology of delinquent behavior. Hence, there are reports which entail ecological analysis, the study of the content and structure of delinquent subcultures, or the influence of cultural and socio-economic factors. Yet such efforts, commendable as they are, often fail to reveal why one youngster is delinquent but the boy next door to him is not, or why one brother runs afoul of the law but the other does not. Faced with these questions, investigators focused upon the home and the family interaction which was to be found there. The family was regarded as a transmitter of social values and attention was directed toward relationships between parents or between parents and child, father absence from the home, disciplinary practices, and subtle rewards for delinquent behavior.

Who is the delinquent? What is he like? In what respects does he differ from the non-delinquent? Such questions give rise to a third research approach in which

attention is directed toward the individual characteristics of the delinquent. His intellectual functioning, his personality, even his physical characteristics come under scrutiny. Differences between juvenile offenders and controls are revealed in responses to tests and questionnaires, in case history material, and in the performance of experimental tasks. The present effort is most similar to this type of research. It consists of two separate but related studies. The first involves the comparison of delinquents and non-delinquents with regard to two personality variables; the second is concerned with the performance of delinquents on an experimental task.

A. Impulsivity and Delinquent Behavior

Both clinical description and empirical data depict the juvenile delinquent as an impulsive individual. Acting-out behavior, sole regard for immediate consequences, low frustration tolerance, and the inability to delay gratification are overlapping components which reflect low impulse control. The impulsiveness of juvenile offenders has been revealed by a variety of methods.

As part of their large-scale study of 500 delinquents and 500 non-delinquents from the Boston area, Glueck and Glueck (1950) had the Rorschach test administered to all subjects. The test protocols were then examined for a number of behavior dimensions by scorers who had no knowledge whether any given protocol was produced by a delinquent or non-delinquent subject. When all the protocols had been

scored, the investigators found that almost twice as many non-delinquents as delinquents were categorized as "marked" or "slightly so" on the dimension of self-control, which was defined as "the opposite of emotional lability and impulsiveness."

One way of describing the delinquent personality involves an examination of the delinquent's characteristic responses to a formal personality test and relating such responses to extra-test variables as, for example, number and types of offenses, family background, educational and social attainment, and clinical interviews. This approach was adopted by Wirt and Briggs (1959) who categorized adolescent boys on the basis of their Minnesota Multiphasic Personality Inventory code types. One code type, the 0,2,5, was considered to be contraindicative of a delinquent personality. Two groups of boys, one which was and one which was not delinquent, were selected because they produced this MMPI profile. Two other groups, one delinquent and the other non-delinquent, were investigated because they produced a 4,8,9 code type which was considered to indicate a delinquency-prone personality. The history and adjustment of these boys were studied by means of records from social agencies, interviews with the boys, and a questionnaire administered to the mothers. Wirt and Briggs reported their findings in great detail. What deserves note is their conclusion that:

> .... delinquents were described as persons who 'act out, are non-conforming, extrapunitive, unpredictable, self-indulgent, envious, deceitful,

> critical, sensitive to demands, and give up easily when frustrated.' (p.59)
>
> We have found that these boys are superficial, sensual, and selfish. Their relations with others are casual and their chief interests are self-indulgent and characterized by needs for excitement and changes. They achieve poorly in terms of social mores. (p.41)

These descriptions certainly suggest that the delinquent has low impulse control. Wirt and Briggs point out that these behaviors are considered to be symptoms of character disorder rather than neurosis, and that it is these defects together with an unfavorable family history which will be found in the majority of cases of juvenile delinquency.

Most researchers have compared delinquents and non-delinquents in terms of case history data or high and low scores on questionnaires and tests. Another approach was adopted by Quay and Peterson and their co-workers (Peterson, Quay & Cameron, 1959; Quay, Peterson, & Consalvi, 1960; and Peterson, Quay & Tiffany, 1961). These investigators attempted to uncover personality dimensions of delinquents by factor analyzing responses to a number of questionnaires which have been shown to differentiate between delinquents and non-delinquents. Three personality factors were identified. The first of these implied an amoral and rebellious attitude, impulsiveness, and an open distrust of others. This was labeled "psychopathic delinquency." The second factor, "neuroticism," also indicated impulsive acting-out, but also guilt and tension. A sense

of incompetence and failure characterized the third factor, which was called "inadequacy."

Tiffany, Peterson, and Quay (1961) attempted to determine whether the concepts of psychopathy, neuroticism, and inadequacy described types of delinquents. From their factor analytic investigation, the authors concluded that the factors "define dimensions of behavior rather than types of people." For the present purposes, the important conclusion is that three personality dimensions apparently account for most delinquent behavior, and that two of these dimensions entail impulsive behavior.

Delinquency may be viewed as a result of the failure of personal and social controls. Reiss (1951) investigated the association between delinquent recidivism and certain controls assumed to exist in primary groups, the community, and the individual. First of all, Reiss suggested that delinquent recidivism represents the failure of primary groups to establish non-delinquent roles in the child and reinforce such roles by exerting social control. Support for this position was obtained when there were significant correlations between recidivism and economic status of the family, marital discord in the home, and unfavorable parental moral ideals or techniques of control.

Reiss then examined the influence of community and institutional controls. He noted that certain areas of the city contain institutions which foster delinquent behavior. His data indicated that success on probation is positively

related to residence in areas where institutional controls did not encourage delinquency. In addition, recidivists tended to come from families with rented homes or families that moved frequently. The explanation given for this was that community controls cannot exert a strong influence over mobile families, and that families with poor social organization are not likely to establish permanent residences. Another social institution that exercises control is the school. Compared with non-recidivists, recidivists were found to be truant significantly more often and were more frequently classified as being behavior problems.

Reiss also investigated the adequacy of personal controls of recidivists. Using psychiatric diagnosis as an index of control, he found that juveniles with either weak ego or superego restraints belonged to the recidivist group significantly more often than those individuals having strong personal controls. Reiss also postulated that recommendations for treatment made by psychiatrists should also reflect the degree of personal control. This was supported by the data which indicated that delinquents with relatively weak controls, for whom institutional placement was recommended, were more often recidivists than delinquents for whom home or community placement was recommended. From his investigation, Reiss drew the following conclusions:

> Our observations show (1) that delinquent recidivists are less often than non-recidivists members of social groups and live in a social milieu which is characterized by norms and effective techniques in producing conforming

> behavior contra delinquency, (2) that delinquent recidivists less often accept or submit to the control of social groups which enforce such conformity behavior than do non-recidivists, and (3) that delinquent recidivists are less often persons with mature ego ideals or non-delinquent social roles and appropriate and flexible rational controls which permit the individual to guide action in accord with non-delinquent group expectations. (p.206)

Dinitz, Scarpitti, and Reckless (1962) point to the Reiss study in support of their contention that resistance to delinquency involves a "self-containment factor." These investigators examined the behavior of two groups of 16 year-old boys who four years previously had been judged by teachers as either likely or unlikely to fall into delinquent ways. All subjects were from the same area and thus presumably exposed to the same temptations and inducements. From their investigations, Dinitz et al. concluded that those boys who did become delinquent had poor self-concepts and "weak inner direction (self or ego)" which made them vulnerable to deviant behavior. This would appear to be saying, in part, that the delinquency-prone boys possessed poor impulse control. Unfortunately, the concept of self, which may be defined several ways and upon which the study hinges, was not carefully detailed by the authors.

The impulsive person is not a planner; he will act in accord with the rewards of the present without considering that such gains may be outweighed by future losses or punishments (Mowrer & Ullman, 1945). In short, he does not think of the future. This aspect of impulsiveness has produced two studies concerned with the time orientation of

delinquents.

In the first of these (Barndt & Johnson, 1955) groups of delinquent and non-delinquent boys, matched in terms of IQ, academic achievement, and socio-economic status, were asked to complete a story begun by the investigator. Each subject was then instructed to estimate the time span from the beginning to the end of the story. The delinquent group produced stories with significantly shorter time intervals than the matched control groups. A replication of the Barndt and Johnson study (Davids, Kidder, & Reich, 1962), utilizing both boys and girls who were delinquent, produced similar results. Unfortunately, the replication used Barndt and Johnson's data from the non-delinquent group for comparison, which weakened the design of the study.

From the rather diverse array of studies above, it would seem reasonably safe to conclude that the delinquent lacks impulse control. But one difficulty in discussing impulse control lies in the concept of impulsivity itself. It is sometimes treated as a unitary behavior in the literature, but more often clinical observation and the descriptions of impulsive persons suggest that impulsivity refers to a cluster of behaviors. Thus, it has been suggested (Sanford, Webster, & Freeman, 1957) that impulsiveness entails "aggressiveness, rebelliousness, defiance, competitiveness, restlessness, excitability, adventurousness, unconventionality, sensuality, exhibitionism, tolerance, permissiveness, and flexibility." (p.2) Verrill (1958)

concluded that the impulsive person is relatively insensitive to the feelings and expectancies of others. Twain (1957) was able to interpret five of six factors extracted from the factor analysis of responses to 16 different measures of impulse control, and in a later study (Barratt, 1958), the investigator identified four factors in an analysis of a questionnaire which he constructed to measure impulsivity.

The point is that impulsivity is a rather variable and protean concept which refers to a variety of reaction tendencies, temperamental variables, and motor activities. At times it is used in connection with observable behavior; at other times, impulsivity infers some sort of internal construct or process. There is thus some ambiguity and vagueness surrounding the use of this concept. Nevertheless, the possibility remains that there may be differences in the dynamics behind the behaviors defined as impulsive. Specifically, the lack of impulse control in the delinquent may reflect a cognitive style that is different from that of his non-delinquent counterpart. It is proposed here that this difference may lie in the area of expectancies of internal and external control of reinforcement.

B. Impulsivity and Locus of Control

According to Rotter (1966), individuals learn through experiences in a variety of situations whether their behavior will secure a given goal. When reinforcement follows behavior, it strengthens the expectancy that the action in question will be followed by reinforcement in

the future. In some situations, however, the individual may feel that there is nothing that he can do to attain the desired goal; that is, he perceives that there is no contingency between his behavior and reinforcement. Thus, the person may see positive and negative events as the result of luck, chance, or some external agent; reinforcement is unpredictable. This is a belief in external control. At the other extreme, positive and negative events may be perceived as contingent upon what the person does and thereby under his personal control; this is a belief in internal control. It is important to note that the difference does not lie in the source of reinforcement but in the perceived source of control. It must also be pointed out that such expectancies regarding control generalize across a large variety of situations.

It is proposed that the delinquent holds a stronger belief in external control than does his non-delinquent counterpart, because the juvenile offender's law-breaking is as much a function of his cognitive style as it is of his impulsiveness. The delinquent's behavior seems to indicate that he believes the laws of society, the rules of authority, and the middle-class value system all mete out reinforcements that are beyond his control. To put it another way, society's rules of good behavior have not been internalized by the delinquent because he has not developed strong expectancies of reward and punishment upon his behavior. Relevant here is the finding (Rotter, 1966) that

individuals with an internal control orientation tended to see punishment as a direct result of immoral behavior, whereas persons with a generalized expectancy of external control saw the punishment as a function of external conditions. In addition, McDavid and Schroeder (1957) produced evidence which suggested that delinquents, when compared with non-delinquents, have poor discrimination of reward and punishment contingencies. Thus, the delinquent is irresponsible in the sense that he does not regard the rewards and punishments of the larger society as events he can influence.

Summarizing to this point, there is consistent evidence that the delinquent is an impulsive person. In addition, the observation of delinquent behavior leads to the expectation that the juvenile offender holds an external control orientation. But what is the nature of the relationship between impulsiveness and external control? There has been no attempt to draw such a relationship, but on theoretical grounds it can be argued that low impulse control in delinquents is correlated with an external control orientation because both variables share common antecedents and both are rooted in similar personality characteristics.

The antecedent conditions of impulsive behavior and external control can be found in the home. Peterson and Becker (1965) have pointed out that the delinquent home is meager in its rewards for such behaviors as responsibility and middle-class standards of achievement, both of

which can be related to the development of internal control. At the same time, stability, order, and self-sacrifice are also infrequent in this type of home, and it is these features which would seem to require emphasis in the development of a reasonable level of impulse control. In addition, it has been observed that the parental discipline of delinquents is quite erratic and inconsistent (McCord, McCord, & Zola, 1959; Bennett, 1960); the children are punished for a given behavior one time but not the next, one parent is punitive and the other is lax, or parents vary in their attitudes and methods of discipline. These circumstances could lead to external control expectancies, since punishment is not always contingent upon behavior. At the same time, such conditions are found in the backgrounds of hostile, uncontrolled children -- those whose behaviors could be described as impulsive (Bandura & Walters, 1959). The relationship between inconsistent parental disciplinary practices, impulsiveness, and the perception of external control in the child have been summarized by Gibbens and Ahrenfeldt (1966):

> Erratic or inconsistent behavior by parents is one of the causes of extremely patchy internalization of controls. Anxiety about the varied consequences of behavior, or fear that things may go wrong for no detectable reason, as well as feelings of anger and hostility toward the parent that it is (sic) too dangerous to express, may give rise to the impulsiveness and inability to postpone the immediate satisfaction of desires that are so characteristic of the delinquent. Life has taught him that if a chance of present satisfaction is postponed, it may not recur; promises of rewards in the

> future are not fulfilled Delinquents have also been thought to show a disturbed sense of time, an inadequate understanding of the future consequence of behavior, as well as a poor appreciation of the past. Great insecurity, and an inability to feel safe in the present, may restrict the delinquent's attention to a constant watchfulness on the present. In order to relieve anxiety, he commonly takes refuge in a facile and frivolous cheerfulness, with a philosophy that everything is a matter of good luck or bad luck, that there are no regularities or reliable expectations. (pp.76-77)

There are other reasons why impulsiveness and belief in external control should be related in delinquents. Peterson, Quay, and Cameron (1959) found that delinquents are characteristically impulsive, but that they also suffer from feelings of incompetence and failure; such feelings would be expected in a person who believed that positive and negative events were unrelated to his behavior. Another line of reasoning can be brought to bear upon this point. It seems that the largest proportion of juvenile offenders come from the lower socio-economic levels (Reiss & Rhodes, 1961; Clark & Wenninger, 1962). Lefcourt (1966) has noted that groups whose social position allows a minimal amount of social power, such as the lower socio-economic classes, tend to score higher in the direction of external control. Thus, it is possible that the delinquent's low regard for the future and lack of direction (impulsiveness) is the result of the belief that efforts do not pay off (external control). Finally, Butterfield (1964) found that as external control increases, constructive responses to frustration decrease. Since unconstructive responses

to frustration may be construed as part of the pattern of impulsive behavior, here again is evidence of a relationship between low impulse control and a belief in external control of reinforcement.

If delinquents do have expectancies of external control, and if indeed a substantial relationship between impulsiveness and external control can be shown, then it would seem advisable to concentrate our attention on the expectancies of delinquents rather than their impulsive behavior. The reason for this is that the concept of external vs. internal control may prove to be a more useful and explicable device for understanding delinquency. It is a better theoretical approach for several reasons. Compared with the variable of impulsiveness, internal-external control has been more thoroughly studied. It has been related to risk-taking (Liverant & Scodel, 1960; Strickland, Lewicki & Katz, 1966), social influence and attempts to control one's environment (Phares, 1965; Seeman, 1963; Seeman & Evans, 1963; Strickland, 1965), achievement behavior (Crandall, Katkovsky, & Crandall, 1965; Rotter & Mulry, 1965), and learning and extinction (see below). In addition, the construct of control has social as well as psychological implications. It is likely that the belief in internal or external control is subject to cultural and class influences (Battle & Rotter, 1963; Lefcourt & Ladwig, 1965). Finally, to the extent that the construct of internal-external control has been clarified more than that of

impulsivity, it has become more useful for programs of treatment and change.

C. Locus of Control, Learning, and Extinction

The argument in the preceding section contends that internal-external control is a useful construct for the study of delinquency. But to show that perceived locus of control varies among delinquents, or that it shares a relationship with impulsivity is only a first step. The next requirement is to provide some evidence that perceived locus of control actually influences behavior in delinquent subjects. Accordingly, the second purpose of this project is to determine whether internal-external control orientation will have an effect upon the way delinquents perceive a given situation.

Rotter has suggested that expectancy will influence the effects of reinforcement. Reinforcement that is perceived as contingent upon behavior will have a stronger effect on that behavior than reinforcement that is seen as externally controlled. A number of studies have been conducted in order to test this hypothesis. The basic paradigm has been either of two types. In the first, a learning task is presented and the subject is made to perceive it as a chance (external control) or skill (internal control) situation. The second type of paradigm involves the comparison of performances on two different tasks -- one which is skill determined and the other which is a chance task.

The critical dependent variable is the expectancy of future reinforcement under skill and chance conditions of reinforcement.

Phares (1957) hypothesized that persons in a skill situation should use their past performance as a basis for generalizing about their future performance. Interpreting their scores as a function of skill, they should, for example, lower their expectancy of future success after failure on a given trial. Such predictable changes should not occur when subjects are in a chance situation, and should be more irregular. To test this hypothesis, Phares had subjects perform on two tasks. Half the subjects received instructions that presented the tasks as skill types; the other half received instructions that encouraged a chance orientation. Reinforcement was controlled by the experimenter and was presented in a prearranged sequence. Before each trial, the subject had to bet whether he would perform the task correctly, thus providing a measure of expectancy. The results were in accord with the hypotheses. The skill instructions produced greater expectancy changes than the chance instructions. Subjects also shifted their expectancies more often under the skill conditions.

A later study by James and Rotter (1958) was concerned with the extinction of expectancies under skill and chance conditions. The task required the subjects to guess what kind of cards would be presented to them in the fashion of an extrasensory perception experiment. Actually, the

experimenter controlled the number of correct matches which had been planned in advance. One group of subjects received instructions which suggested that the task involved nothing more than chance; another group was told that scientists had found that some people were quite skilled in such matching situations. Each group was then divided into 100% reinforcement and 50% reinforcement subgroups. After ten training trials, an extinction series was begun. Before each trial, the subject stated his expectancy of success on an 11-point scale. The extinction series were terminated when the subject indicated a very low expectancy of success.

The investigators found that under chance conditions, the 50% group took longer to extinguish than the 100% group. This finding is in accord with laboratory studies of animals (Ferster & Skinner, 1957). Under the skill orientation, however, the mean number of trials to extinction was greater for the 100% group than for the 50% group. James and Rotter interpreted these findings in the following way. For the skill condition, the greater the number of reinforcements in the training series, the longer it would take the subject to realize that his skill was no longer useful in extinction. Under chance conditions, on the other hand, a change from 100% reinforcement to no reinforcement meant that the subject's "luck" had run out, but this was less apparent to the 50% reinforcement group.

The above study was carried one step further by Rotter, Liverant, and Crowne (1961). Two tasks were used:

one was the ESP card-matching task, presumed to be perceived by the subjects as involving chance; the other was a motor task thought to be seen typically as a test of skill. Subjects were assigned to one or the other task and then given 25%, 50%, 75%, or 100% reinforcement over eight training trials before the extinction series. The results of the James and Rotter study were replicated by the 50% and 100% reinforcement groups. Differences between the chance and skill groups on 25% and 75% reinforcement were smaller than those between 50% and 100%. The authors advanced the interpretation that for the chance group, 25% and 75% reinforcement was less and more, respectively, than would be accounted for by chance alone; hence the task appeared to involve the use of skill. Indirect evidence supporting this interpretation has been produced by Blackman (1962), who found that the shorter the sequences of colored lights in a prediction task, the more likely the subject would interpret the task as involving chance.

Two points require emphasis with respect to the above research. First, the studies show that expectancies of persons in learning situations differ, depending upon whether the conditions are seen as involving skill or chance. Second, the orientation of the subject was manipulated either through the use of instructions or the type of task presented. Now, according to Rotter's social learning theory, expectancies of internal or external control generalize across a variety of situations. It follows

that if a person holds a predominantly external orientation, he should respond to a situation in accord with that cognitive style, provided the situation could be interpreted as involving either chance or skill. Beside theoretical reasons, there is some evidence that would suggest this. James and Rotter (1958) noted that there were wide individual differences to extinction in their groups, indicating that perhaps some subjects responded to the task in terms of their own expectancies regardless of the chance or skill orientation given to them by the experimenter.

When an individual is given a projective psychological test, it is assumed that he will react to the ambiguous or unstructured stimuli in a manner that reflects his own feelings, needs, and ways of perceiving things. Similarly, when a person is required to perform an ambiguous task (in the sense that it may be interpreted as involving either skill or chance), he should approach the task in terms of generalized expectancies of internal or external control. Those individuals with a predominantly internal control orientation will see the task as a test of skill, whereas persons with an external control orientation will regard the task as a game of chance. Increments and decrements in expectancy (where reinforcement is controlled by E) should vary according to the individual's orientation.

While delinquents in general may tend to believe in external control, it is still expected that individual cases should vary in this regard; some delinquents should hold a

stronger external control orientation than others. It follows that to the extent that juvenile offenders vary on the continuum of internal-external control, they should also vary in terms of their expectancies on an ambiguous task. The reasons for this prediction have been discussed previously. It would seem worthwhile to put this general line of reasoning to an experimental test. The results would indicate whether expectancy really does generalize across situations. And if differences in expectancy were found in delinquents that varied on the internal-external control dimension, they would show that this cognitive style actually can have an effect upon the way juvenile offenders behave in a given situation. This would provide support for the contention that the perception of internal-external control is a useful explanatory concept in the investigation of delinquent behavior.

D. Rationale

In conclusion, the rationale for this study may be stated as follows. There is consistent evidence that delinquents tend to be impulsive individuals. While such evidence aids our understanding of the delinquent, it nevertheless is of limited value because there is no general theory of impulse control with a strong experimental base. On the other hand, there is a theory of expectancy, and this would appear to account for those behaviors in delinquents which have been described as impulsive. The purpose of this

study, then, is to determine whether there is a relationship between impulsivity and the expectancy of external control and to show that the expectancy of internal or external control actually influences the behavior of delinquents.

E. Definitions

External control.-- External control refers to the perception of environmental events as being unrelated to one's own behaviors and therefore beyond personal control.

Impulsiveness.-- Impulsiveness refers to a broad class of behaviors which are characterized by one or a combination of the following features: explosive outbursts, low frustration tolerance, an overemphasis on personal pleasure and self-gain, and a disregard of the long-range consequences of one's actions. The term is synonymous with "low impulse control."

Internal control.-- Internal control refers to perception of environmental events as being related to one's own actions and thereby under personal control.

Juvenile delinquent.-- For the purposes of this study, a juvenile delinquent is any person under the age of 19 years who has been adjudicated for a legal offense.

Reinforcement.-- Reinforcement refers to the consequences following a particular behavior which influence the future occurrence (i.e., frequency) of that behavior.

CHAPTER II

HYPOTHESES

This study had two broad purposes. The first was that of determining whether delinquents hold a stronger external control orientation than non-delinquents and whether there is a relationship between impulsivity and external control in juvenile offenders. Three hypotheses were advanced in connection with this purpose.

First, it was hypothesized that delinquents evidence a significantly lower degree of impulse control than do non-delinquents. Although this hypothesis has already been supported by previous research, it was necessary to include it here in order that impulse control could be compared with internal-external control.

Second, it was hypothesized that delinquents evidence a significantly greater external control orientation than do non-delinquents. This expectation was based upon descriptions of delinquent behavior which suggest that juvenile offenders act in accord with a belief in external control.

Third, it was hypothesized that there is a substantial correlation between low impulse control and the expectancy of external control in delinquent subjects. This

hypothesis is in accord with the thecretical relationship between impulsivity and external control which was outlined in the previous chapter.

The second purpose of this study was that of determining whether internal-external control orientation actually has an influence upon the behavior of juvenile delinquents. There are a variety of ways this problem could be approached. We chose an ambiguous task (i.e., one that could be interpreted by the subject as involving either skill or chance) under the assumption that the person's internal-external control orientation would influence his interpretation of the task. The general hypothesis was that delinquents with a tendency toward an internal control orientation would interpret an ambiguous task as one requiring skill, whereas delinquents with an external control orientation would perform on an ambiguous task as though success was a matter of chance.

Specifically, the first hypothesis stated that in an ambiguous task where the reinforcements are controlled by the experimenter, increments in expectancy following success and decrements following failure will be significantly greater for delinquents with a relatively stronger internal control orientation. Persons with an internal control orientation should perceive the task as involving skill. Hence, failure or success on a given trial should be interpreted as a function of the individual's efforts, something he can control, and should effect his estimation of future success.

But the person who sees the task as involving chance and with success and failure beyond his control does not have an objective basis for his expectancy, since past performance gives little information about future success in a chance situation.

Second, it was hypothesized that increments and decrements in expectancy would be significantly greater for delinquents with a relatively stronger internal control orientation, regardless of whether they were usual or unusual shifts. Here, a "usual" shift referred to an increment in expectancy after success and a decrement after failure; an "unusual" shift referred to a decrement in expectancy after success and an increment after failure (the "gambler's fallacy"). The argument behind the first hypothesis would also apply here. If the subject believes that reinforcement is a matter of chance, luck, or some external agent, his expectancy of success on any given trial should be relatively independent of previous trials. This would not hold for the individual who believes that reinforcement is contingent upon his skillfulness.

Third, it was hypothesized that delinquents with a predominantly external control orientation will make a significantly greater number of unusual shifts than those individuals with an internal control orientation.

In summary, six hypotheses formed the basis of this research project. The first three hypotheses were generated by the questions, "Do delinquents and

non-delinquents differ on the dimensions of internal-external control and impulsivity?" and "Is there a relationship between low impulse control and external control orientation in delinquents?" The last three hypotheses arise from the question, "Will differences in internal-external control orientation in delinquents be reflected in their expectancies in an experimental task designed to allow the influence of these differences?"

CHAPTER III

RESEARCH METHOD

A. Outline of the Method

The material in this chapter may be more readily comprehended if the broad outlines of the research method are summarized at the outset. First, two scales, one measuring impulsivity and the other measuring internal-external control orientation, would be administered to 50 delinquents. This would allow us to compute the relationship between impulsivity and internal-external control in these subjects. Second, those delinquents with the lowest and highest scores on the measure of internal-external control would participate in an experiment. The experiment is designed to determine whether differences in internal-external control among delinquents produce differences in behavior. Third, the two scales would be administered to 30 non-delinquent subjects in order to determine whether the delinquents were more impulsive and more oriented toward external control than non-delinquents.

B. The Measure of Impulse Control

A measure of impulse control was provided by the

Self-control (Sc) scale of the California Psychological Inventory (Gough, 1957). The Sc scale is a 50-item, true-false questionnaire that contains self-descriptive statements. Low scores on the scale reflect low impulse control. When the test was administered to high school students, test-retest reliability was .68 for females and .75 for males after an interval of one year. A reliability coefficient of .86 was obtained when 200 male prisoners took the scale twice with an interval varying from 7 to 21 days.

The validity of the Sc scale has been examined in three studies. In the first, the Sc scores of medical students correlated -.25 with staff ratings of the students' impulsiveness. Second, the Sc scores of military officers at the University of California correlated -.23 with staff ratings of the officers' impulsivity and .21 with staff Q-sortings of the phrase "over-controls his impulses." Third, the CPI was administered in 6 high schools, and the principals were asked to choose the least and most impulsive students. The difference between the Sc scores of the least and most impulsive boys was significant at the .01 level, producing a biserial r of .56 and a point-biserial r of .45. The difference between the Sc scores of the girls was also significant at the .01 level, with a biserial r of .48 and a point-biserial r of .38.

The Sc scale may be found in Appendix A.

C. The Measure of Internal-External Control

Rotter (1966) has developed a forced-choice test

which requires the subject to choose one of a pair of alternative statements. There are 29 such pairs in the test, which is called the I-E scale. Six of the pairs are filler items which are not scored. A high score on this scale reflects the subject's generalized expectancy of external control. Reported internal consistency coefficients vary from .65 to .79, and test-retest reliability ranges from .49 to .83.

There apparently has been no attempt to assess the validity of the scale in terms of obtaining validity coefficients. However, the I-E scale has been utilized in a large number of studies, and the consistency of the predicted differences in behavior based upon the scale scores, together with correlations with other behavioral criteria serve to bolster the construct validity of this instrument.

The complete I-E scale will be found in Appendix B.

D. Subjects

Two groups of subjects were required for this study. One group was composed of 50 juvenile delinquents (delinquent group). Seventeen of these delinquents were obtained from the Youth Development Center, New Castle, Pennsylvania, and the remaining 33 subjects were selected from George Junior Republic, Grove City, Pennsylvania. The other group (non-delinquent group) consisted of 30 students from Peabody High School, Pittsburgh, Pennsylvania.

Subjects in both groups were males between the ages

of 14 and 18 years and with IQ scores no lower than 85. In addition, all subjects belonged in class V of the Hollingshead Two Factor Index of Social Position, which is the lowest socio-economic class. The Index is briefly described in Appendix C. All the subjects in the delinquent group had been adjudicated for a legal offense, whereas -- so far as the investigator could determine -- none of the non-delinquent subjects had been adjudicated in a juvenile court.

The mean ages of the delinquent and non-delinquent groups were 199.68 and 196.10 months, respectively, and the mean Index scores were 68.56 and 67.43. Statistically non-significant differences were revealed when separate t tests were applied to the mean ages and Index scores, indicating that the two groups were reasonably well matched in terms of age and socio-economic class. No statistical comparison was made of the IQ scores of the delinquent and non-delinquent subjects because such scores were obtained from a variety of individual and group tests utilizing different scale values. This was not regarded as a major difficulty since the purpose of obtaining IQ scores was not that of matching groups on this variable, but rather to insure that all subjects would possess at least the minimum level of intelligence necessary to comprehend the items on the Sc and I-E scales (i.e., 85 IQ or above). The age, IQ score, and Index score for each subject are presented in Appendices D and E.

Thirty individuals in the delinquent group were

chosen to participate in an experiment, the purpose of which was to determine whether differences in internal-external control produce differences in behavior. The 15 subjects whose I-E scale scores were the most extreme toward the internal end of the dimension and the 15 most extreme scorers toward the external end of the scale were selected to comprise two delinquent subgroups, hereafter referred to as the internal and external control groups. All of the boys in these groups who were asked to participate in a "second part" of the study agreed to do so.

In order to insure that examiner knowledge would not subtly influence the subjects' task performance, the I-E and Sc scales were scored by someone other than the examiner. The person who scored the scales also selected the 30 delinquents for the internal and external control groups. Thus, the examiner had no knowledge of the subjects' I-E scale scores.

E. Administration of the Scales

All subjects were tested individually, and received both scales in one session. The examiner introduced himself as a student from the University of Pittsburgh who was conducting a research project. Each person was told that the purpose of the tests was "to see how people in your age bracket do on them." Subjects were assured that their responses to the questions would remain confidential, and it was especially emphasized to the delinquents that how they

responded to the scale items would have no effect on their program at the institution. The examiner introduced the Sc scale with the following instructions:

> Here is a list of statements. Look at each statement as I read it to you. Then decide whether the statement is true or false as applied to you, and circle the T for true or F for false beside it. Try to answer every statement. If you do not understand any statement, ask me about it. Remember to decide whether the statements are true or false as they apply to you. There are no right or wrong answers. Are there any questions?

Upon his completion of the Sc scale, the subject received a copy of the I-E scale, and the examiner gave the following instructions:

> Here are some more statements, but this time you have to do something different. Notice the statements are put together in pairs or groups of two. I will read each pair of statements to you. Then select the one statement of each pair which you more strongly believe to be the case as far as you are concerned. Make an X in the space beside that statement. Be sure to mark 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. If you do not understand any statement, ask me about it. Remember to choose only one of each pair of statements. Do you have any questions?

A brief form of the instructions was printed on the scales in order to maintain the proper orientation of the subject. Half of the subjects in each group received the scales in the reverse of the order indicated above to control for sequential effects.

F. Experimental Materials

The materials for the experimental task consisted of ten ½-inch wide strips of black Dymo tape ranging from 1 inch to 2 1/8 inches in length. The differences in length between any two adjacent size strips was 1/8 inch. Each of the ten strips were mounted at various angles in two rows on a large white display board. Thirteen of these same strips (colored gray, blue, or yellow, and no length occurring more than twice) were pasted at varying angles on 3 x 5 inch filing cards. Each card's strip was exactly the same length as one on the board. The other materials for the experiment were 200 poker chips and two large plastic bowls.

G. Experimental Procedure

All subjects were tested individually. The examiner introduced the experiment with the following instructions:

> I want to see how well people can match things when the differences between them are pretty small. Look at this display board (E points to board). It has 10 strips of tape on it. Each tape is longer or shorter than the others; no 2 strips of tape are the same length. Now look at these cards (E points to stack of cards). Each one has a strip of tape on it. Each tape on these cards is exactly the same length as 1 of the tapes on the board. Look at each card and tell me which tape on the board is the same length as the tape on the card. After each card, I will tell you whether you were right or wrong. There are 13 cards, and we will go through them twice, so if you get every one right, you would get a score of 26. Notice there are 10 tapes, but 13 cards, so you can expect some tapes to be repeated on the cards. Do you understand so far?

> There is something else I would like you to do. I want you to bet how well you will do on each card. You can bet anywhere from 0 to 10 chips. If you feel pretty sure you will be right on the next card, you might bet 9 or 10 chips; if you feel just fairly sure you might bet 5 or 6 chips; or if you feel pretty sure you won't be right on the next card, you might bet 0 or 1 chip. Now these bets that you make before each card can affect your total score. If you win your bet by being right on the next card, your winnings will be added to your total score; but if you are not right on the next card, you lose and the number of chips you bet will be subtracted from your score. For example, if you have won 10 chips, and you bet 5 chips on the next card and you are wrong, you do not get the 5 chips and 5 are taken away from the 10 you had won. Do you understand? The person who makes the highest score will receive a prize of 2 dollars. So it is important that you make your bets carefully, and that you consider carefully what your chances are of being right on the next card. Remember, you have to bet before you match the tape on the card with the one on the board. Do you have any questions?

The examiner explained that the subject was to bet by taking chips from one bowl and placing them in the other. Any time the subject made an incorrect match, chips would be removed from the second bowl. Then the matching trials began. The examiner handed the cards to the subject one at a time and took each card back after the trial was corcluded. Each subject was reinforced (told he had made a correct match) after trials 1,2,4,7,8,9 and 13, regardless of his actual performance. Upon the completion of the thirteenth trial, the examiner shuffled the cards and asked the subject to go to the board. At the same time, the examiner said:

> Now we will trade places. You go to the board. I will hold up these cards one at a time and you point to the tape on the board that is the same length as the tape on each card. I want you to bet how well you will do on each card like you did before. Remember to consider carefully what your chances are of being right on the next card. Do you understand?

Each subject was reinforced on trials 1,5,6,7,10,12, and 13. This sequence of reinforcements was the reverse of that in the first series of 13 trials.

Throughout the course of the experiment, the distance between the cards and the display board was 8 feet. At this distance, it was impossible for the subject to tell for sure whether his matches were correct or incorrect.

CHAPTER IV

RESULTS

A. Possible Influences of Race and Sequential Testing

There are a number of studies which suggest that Negro and white subjects react differently to Negro and white examiners. For example, Trent (1954) reported that Negro and white children's preferences for light- or dark-skinned mothers on a TAT-type test depended upon the race of the examiner; and Katz, Roberts, and Robinson (1965) found that the race of the examiner and how a test was described interacted to influence the performance of Negroes on the test. Other investigations reveal that the examiner's race seems to bear a relationship to the reactions of Negro subjects in terms of anxiety level (Baratz, 1967) and response to verbal incentive (Kennedy & Vega, 1965). Other reports of examiner influence across racial lines have been summarized in a recent review by Dreger and Miller (1968).

In view of the above evidence, it seemed possible that Negro and white adolescents might perform differently on the Sc and I-E scales as a consequence of being tested by a white examiner. The writer found it impossible, however, to predict what the exact nature of such differences might be. For example, it is difficult to determine from

Negro and white children's responses to a TAT-type test how Negro and white subjects would differ in the present situation. Or allowing that Negroes taking the Sc and I-E scales might feel more anxious with the present examiner than with a Negro one, it is quite another matter to predict how their anxiety would influence their scale responses. Of course, this does not eliminate the possibility that some sort of interaction might profoundly influence the testing situation. This potential problem could have been eliminated by utilizing groups that were all white or all Negro, but this added restriction would have resulted in rather small groups. Instead, both Negro and white subjects were included in the groups and, as a check, a comparison was made after testing to determine whether the performance of Negroes and whites were markedly different.

Negro subjects comprised 40% of the delinquent group and 50% of the non-delinquent group. If the presence of a white examiner influenced the Negro subjects in some way that was different from white subjects, we would expect that the mean Sc and I-E scores for Negro delinquents would be significantly different from the mean Sc and I-E scores of white delinquents. Similar differences should obtain for the scores of Negro and white non-delinquents. Table 1 shows the relevant mean scores. Negro and white delinquents produced a mean difference of 1.70 on the Sc scale and a mean difference of 1.02 on the I-E scale. The corresponding mean differences for Negro and white non-delinquents

were 1.00 for the Sc scale and 1.00 for the I-E scale. When *t* tests (two-tailed) for the difference between means were applied to each of these differences, none of the results were statistically significant. Thus, it does not appear that the race of the examiner produced a marked difference in the performances of Negro and white subjects in the testing situation.

TABLE 1

MEANS, NUMBER OF SUBJECTS, AND *t* VALUES FOR Sc AND I-E SCORES OF NEGRO AND WHITE SUBJECTS

Subjects	Sc Scores		
	Mean	No. of Subjects	*t* Value
Negro Delinquent	19.90	20	.81
White Delinquent	18.20	30	
Negro Non-Delinquent	25.33	15	.40
White Non-Delinquent	26.33	15	
Subjects	**I-E Scores**		
	Mean	No. of Subjects	*t* Value
Negro Delinquent	9.75	20	1.32
White Delinquent	8.73	30	
Negro Non-Delinquent	8.40	15	1.19
White Non-Delinquent	7.40	15	

There was another condition of testing which might have influenced the subjects' responses on the Sc and I-E scales. Obviously, one of the scales had to be administered before the other, and it is possible that the individual's experience of taking one scale might then have biased his

responses on the second scale. In order to reduce the effects of sequential testing, half of each of the two groups received the Sc scale first, while the other half was administered the I-E scale first. If the order of testing did produce a biasing effect, we would expect that the mean scores on a given scale of the subjects in a group who received that scale first to be significantly different from the mean scores of the subjects who received that scale second.

Those delinquents who were administered the Sc scale first produced a mean Sc score of 19.40, while those delinquent subjects that received the Sc scale after the I-E scale produced a mean Sc score of 18.36; the corresponding mean Sc scores of the non-delinquent group were 24.71 and 26.93. A mean I-E score of 9.24 was obtained from the delinquent subjects who took this scale before the Sc scale and a mean I-E score of 9.04 was produced by delinquents who took this scale after the Sc scale; corresponding I-E scores for non-delinquents were 7.73 and 8.07.

As indicated by the t values (two-tailed) in Table 2, the differences between the pairs of mean Sc and I-E scores in each group were too small to reach statistical significance. The sequence in which the subjects were administered the Sc and I-E scales did not have a pronounced influence upon their test performance.

TABLE 2

MEANS, ORDER OF TESTING, NUMBER OF SUBJECTS, AND *t* VALUES FOR Sc AND I-E SCORES OF DELINQUENT AND NON-DELINQUENT GROUPS

Groups	Sc Scores			
	Mean	Order	No. of Subjects	*t* Value
Delinquent	19.40	1	25	.52
Delinquent	18.36	2	25	
Non-Delinquent	24.71	1	15	.90
Non-Delinquent	26.93	2	15	
Groups	**I-E Scores**			
	Mean	Order	No. of Subjects	*t* Value
Delinquent	9.24	1	25	.26
Delinquent	9.04	2	25	
Non-Delinquent	7.73	1	15	.38
Non-Delinquent	8.07	2	15	

B. Comparison of the Delinquent and Non-Delinquent Group Performances on the Sc and I-E Scales

The first hypothesis in Chapter II stated that delinquents evidence a significantly lower degree of impulse control than do non-delinquents. We would expect, therefore, that the delinquent group would produce a lower mean score on the Sc scale than the non-delinquent group. Reference to Table 3 will show that this was indeed the case. The delinquent group obtained a mean Sc score of 18.88, while the non-delinquent group achieved a mean score of 25.83. When a *t* test (one-tailed) was applied to the difference between these means, the obtained value was significant at the .01 level. Thus, the results of the

administration of the Sc scale support the hypothesis that delinquents are significantly more impulsive than non-delinquents.

TABLE 3

MEANS, NUMBER OF SUBJECTS, AND *t* VALUES FOR Sc AND I-E SCORES OF DELINQUENT AND NON-DELINQUENT GROUPS

Groups	Sc Scores		
	Mean	No. of Subjects	*t* Value
Delinquent	18.88	50	4.34*
Non-Delinquent	25.83	30	
Groups	**I-E scores**		
	Mean	No. of Subjects	*t* Value
Delinquent	9.14	50	2.07**
Non-Delinquent	6.90	30	

*$p < .01$
**$p < .05$

It was also hypothesized that delinquents have a greater tendency to fall toward the external end of the internal-external control continuum than do non-delinquents. Accordingly, delinquent subjects should have a mean score on the I-E scale which is higher than that of non-delinquent individuals. As indicated in Table 3, the mean I-E scores of the delinquent and non-delinquent groups were 9.14 and 6.90, respectively. The obtained *t* value of 2.07 was significant at the .05 level (one-tailed), thus confirming the hypothesis regarding the differences between

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delinquent and non-delinquent subjects on the internal-external control dimension.

Turning to the third hypothesis, there was reason to believe that there is a substantial correlation between impulsivity and internal-external control in delinquent subjects. Low scores on the Sc scale should coincide with high scores on the I-E scale. For the present group of delinquents, the correlation between Sc and I-E scores was only -.29. The obtained coefficient was significant at the .05 level and therefore was not likely to have occurred merely by random sampling. We conclude that there is a definite relationship between impulsivity and perceived locus of control, but that the magnitude of this relationship is lower than was anticipated.

C. The Influence of Perceived Locus of Control Upon Task Performance

Thirty individuals from the delinquent group were selected to comprise two subgroups. The 15 delinquents with the highest I-E scores were assigned to one subgroup, and the remaining 15 subjects (who had the lowest I-E scores) were assigned to the other subgroup. The subjects in these subgroups, hereafter referred to as "externals" and "internals", respectively, then performed on a task which would hopefully demonstrate the influences of internal-external control orientation upon behavior.

TABLE 4

MEANS, NUMBER OF SUBJECTS, AND t VALUES FOR Sc AND I-E SCORES OF INTERNAL AND EXTERNAL CONTROL SUBGROUPS

Subgroups	Sc Scores		
	Mean	No. of Subjects	t Value
Internal	21.00	14	1.44
External	18.14	14	
Subgroups	**I-E Scores**		
	Mean	No. of Subjects	t Value
Internal	6.07	14	5.10
External	12.21	14	

Since the purpose of the demonstration project was to show the influence of perceived locus of control upon behavior, it was necessary to ensure that the mean I-E scores of the two subgroups were significantly different. Otherwise, any obtained differences in the performances of the subgroups could be attributed to the influence of the variable measured by the Sc scale as well as that measured by the I-E scale. Accordingly, separate t tests (two-tailed) were applied to the mean differences for the Sc and I-E scores. The mean difference for the Sc scores of the subgroups was significant at the .05 level. By eliminating the subject with the highest Sc score in the internal control subgroup and the subject with the lowest Sc score in the external control subgroup, the mean difference between the Sc scores of the subgroups was reduced enough so that

it did not reach statistical significance. Table 4 gives the mean Sc and I-E scores of the internal and external control subgroups. The t value for the mean difference between the Sc scores of the internal and external control subgroups is not significant, whereas there obviously is a significant difference between the mean I-E scores of the subgroups. No significance levels are reported in the table because the statistical tests were applied for descriptive purposes only.

It was hypothesized in Chapter II that subjects with an internal control orientation would see success on the demonstration task as skill-determined, whereas subjects with a predominantly external control orientation would perform on the task as though it involved chance. Since the presentation of the task was ambiguous with regard to skill or chance determination, it was expected that each subject would respond to the task in terms of his own internal-external control orientation. The person with an internal control orientation should interpret the task as a test of skill. Since he sees himself as an effective agent in this situation, his past performance should provide the basis for generalization about future performance. According to Phares (1957), the person who categorizes the situation as involving skill should make increments in expectancy after success and decrements after failure that are greater than those of the person who believes that success on the task is a matter of chance. Moreover,

chance-oriented (external control) subjects should make more unusual shifts in expectancy than skill-oriented persons, because subjects in a chance situation are more likely to rely on the "gambler's fallacy", whereas subjects in a skill situation respond to success and failure in terms of reinforcement. Finally, Phares proposes that skill-oriented persons should make greater increments and decrements in expectancy than those who categorize the situation as one involving chance factors.

Thus, three specific hypotheses were investigated, necessitating three different scores. First, for all subjects a score was computed by dividing the magnitude of all usual shifts by the number of usual shifts. This will hereafter be referred to as the "magnitude usual shift" score. Notice that it considers the magnitude, but not the direction, of shifts. Second, a score consisting of the number of unusual shifts was computed for each subject; this was the "number unusual shift" score, and here the direction of the shifts is the important element. Third, the absolute amount of all increments and decrements in expectancy was summated and divided by 24 for each subject to produce a "magnitude shift" score. These scores and the hypotheses from which they were derived are not independent. But Phares (1957) used these scores, and we thus have a direct comparison between his results and those of the present study.

Whether a subject's expectancy on any given trial

was scored as a shift depended upon his expectancy on the previous trial. A usual shift was scored whenever the subject increased his expectancy after reinforcement or decreased it after nonreinforcement. On the other hand, when the subject decreased his expectancy after reinforcement or increased it after nonreinforcement, an unusual shift was scored. If the subject did not shift his level of expectancy from one trial to the next, no shift was scored. There were 24 opportunities for the subject to shift his expectancy.

TABLE 5

MEANS, NUMBER OF SUBJECTS, AND *t* VALUES FOR "MAGNITUDE USUAL SHIFT," "MAGNITUDE SHIFT," AND "NUMBER UNUSUAL SHIFT" SCORES OF INTERNAL AND EXTERNAL CONTROL SUBGROUPS

Subgroups	"Magnitude Usual Shift"		
	Mean	No. of Subjects	*t* Value
Internal	2.35	14	.54
External	2.72	14	
Subgroups	**"Magnitude Shift"**		
	Mean	No. of Subjects	*t* Value
Internal	1.18	14	.06
External	1.20	14	
Subgroups	**"Number of Unusual Shift"**		
	Mean	No. of Subjects	*t* Value
Internal	4.57	14	.37
External	5.24	14	

Summarizing, the internal control subjects should have higher "magnitude usual shift" and "magnitude shift" scores than external control subjects. On the other hand, the subjects in the external control group should obtain "number unusual shift" scores that are higher than those of the internal control subjects. Table 5 gives the means of the three scores for the present internal and external control subgroups. The *t* values indicate that none of the obtained mean differences reach statistical significance. Furthermore, the mean differences for the "magnitude usual shift" and "magnitude shift" scores are in the direction opposite of that predicted. On the basis of these results, we cannot reject the null hypothesis that there is no difference in the expectancies of internal and external control subjects on an ambiguous task.

CHAPTER V

DISCUSSION OF THE RESULTS

The results of this study indicate that delinquents are more impulsive and hold a stronger external control orientation than non-delinquents, at least in terms of the measures employed here. We have also produced evidence that the correlation between the two personality variables is great enough to reach statistical significance, but not great enough to possess any practical significance. One could not safely predict, for example, that a highly impulsive delinquent would also hold a strong perception of external control.

If there is not a linear relationship between impulsiveness and perceived locus of control, then these variables could combine in several hypothetical ways. There have been a number of efforts to classify delinquents into personality types or dimensions. The most tenable and soundly constructed of these is that of Peterson, Quay, and Cameron (1959). Perhaps this classification system could serve as a model for the different ways in which impulsiveness and internal-external control might vary together. Recall from Chapter I that Peterson et al. found three personality dimensions which differentiate between

delinquents and non-delinquents. The first of these was "psychopathic delinquency", which included impulsiveness, an amoral attitude, and an open distrust of others. Now this would seem to describe a person who is impulsive and who maintains an external control orientation. He acts out and, at the same time, feels that he is not responsible for the consequences of his behavior. He tends to be a "loner" and sees his environment as a hostile one.

The second personality dimension described by Peterson et al. was called "neuroticism", which also implied impulsiveness but, in addition, guilt and tension. A delinquent who ranked high on this dimension would also be impulsive, but he would tend to fall at the internal end of the internal-external control continuum. He has a low frustration tolerance and does not consider future goals, but he also feels responsible for whatever happens to him. His poor planning and acting on the spur of the moment create tension because he realizes that these behaviors can lead to undesirable consequences -- and that these will be the result of his own doing.

The third factor, called "inadequacy", is characterized by a sense of incompetence and failure. This seems to reflect a combination of high impulse control and an external control orientation. Most of the time, the individual's behavior shows restraint. There also are feelings that one does not have control over the direction his life is taking, and that what happens must be left to fate.

The writer does not presume that impulsiveness and perceived locus of control actually combine in the manners described above, for that is only a matter of conjecture. The purpose of the discussion was to emphasize that these personality variables can be combined in ways different from that originally hypothesized and still be incorporated within the research literature on delinquency.

Does perceived locus of control influence behavior; specifically, does it influence expectancy in an ambiguous situation? From the results of other studies we know that the performance of persons on a task will differ, depending upon whether the task is seen as involving chance or skill. We added an extra step: if persons differ in terms of perceived locus of control, they should also differ in regarding an ambiguous situation as chance or skill determined, and this in turn should produce differences in performance. This extra logical assumption also introduces an additional source of error, making it more difficult to achieve significant results. But this risk is worthwhile, since it would be fruitless to discuss internal-external control as a personality construct if it has no effect upon how a person behaves in certain situations.

From the results of the present study, there is no evidence that perceived locus of control had any effect upon expectancy behavior when the originally intende analyses and scoring methods were utilized. Since the task, method, and analyses of this study were based upon those used by

Phares (1957), who did find significant differences in his experiment, the first question concerns the similarities and differences between the present effort and that of Phares. Three differences and three similarities are outstanding.

Whereas Phares obtained differences in task behavior as a consequence of the type of instructions given, we hoped to obtain differences in performance as a consequence of the type of subjects selected on the basis of their I-E scale scores. This in turn means that Phares had two sets of instructions, each intended to bias the subject's perception of the nature of the task, while we had one set of instructions which was designed to be neutral with respect to information about the type of task presented. A second major difference between the studies is that Phares had 13 trials in his design; this study used 26 trials. Third, Phares offered no reward to the highest scorer, but we did.

The studies were similar in the following respects. Both used the same task, with the same number of lines which were of the same lengths. Second, the betting method of expressing expectancy was employed in both cases. Third, the same mean number of reinforcements were administered in both studies. The present study used the same sequence of reinforcements as Phares did for the first 13 trials; for the second 13 trials, this sequence was reversed.

Returning to the differences in methodology, it would seem unlikely that an increase in the number of trials

in the demonstration task would have an adverse effect upon the outcome. On the other hand, the addition of a reward might have had an unwanted influence upon the task performance of the subjects, namely that of giving the task the cast of a chance-controlled situation. The use of the betting technique with its poker chips, together with the offer of a reward to the "winner", may have affected the psychological set of the subjects such that they perceived success on the task as chance controlled. Instead of trying to estimate the likelihood of being right on each trial, their goal might have been that of beating the system in order to collect the prize.

If the subjects did view the task as a gambling or risk-taking situation, then they would have behaved like persons with an external control orientation, or like Phares' subjects who were instructed that success on the line-matching task was a matter of luck. If both subgroups in the present study were disposed to behave in a manner consistent with an external control orientation, we would expect them to make a relatively large number of unusual shifts in expectancy, and indeed this was the case. The proportion of unusual shifts to the total number of .53 for the internal control group and .51 for the external control group. Thus, slightly over half the shifts in both subgroups were of the unusual type. This represents a large proportion, especially when one considers that the mean proportion of unusual shifts in Phares' (1957) study was only

.16 under the skill instructions and .25 under the chance instructions. While this argument does not establish that both subgroups did in fact react to the demonstration task as though it was a problem involving chance factors, the evidence is suggestive enough to warrant more care in eliminating such subtle influences in any future efforts.

Thus, we would recommend that in the future the offer of a reward and the use of the betting method be eliminated. Contrary to expectations, the writer found that practically all of the subjects in the demonstration project would have cooperated without any material inducement, and it would therefore be advisable to eliminate the offer of a reward which in the present situation reflected the writer's own middle-class bias. The betting method should be eliminated also, and instead the use of a 10-point expectancy scale is recommended. Since Phares (1957) reported a correlation of .99 between the betting and the verbal methods, the betting method was chosen because it appeared to be more concrete. But the correlation was based upon samples of college students and, in retrospect, perhaps betting and the use of poker chips have different meanings for college students and adolescent delinquents. One would guess, for example, that delinquents have done more gambling and know more about it than most college students. By eliminating the reward and the betting method and using solely the verbal method of stating expectancies, we could more safely assume that the nature of the demonstration task regarding

the involvement of luck or skill is ambiguous to the subjects.

A second recommendation is that the subject be required to make a shift after each trial. There were subjects in the internal and external control subgroups who bet 10 chips on every trial, and therefore made no shifts at all. In such cases the subject received a score of zero on each of the three expectancy scores, thereby deflating the group mean without providing any information about expectancy behavior. There were other instances where the individual made very few shifts in expectancy. Since the scoring system employed relies upon shifts in expectancy, the amount of information provided is directly related to the number of shifts obtained. It would be helpful, therefore, to instruct each subject that he must change his expectancy after each trial.

Granted that there were no differences between the subgroups in terms of the sum total of their performance, there also is the question whether there were changes in behavior as a function of time. This consideration was prompted by Phares' statement that the number of trials should be a "potent factor" in determining expectancies in a skill situation. Assuming this is true, we should expect that the effect of an internal or external control orientation upon behavior should be more pronounced, up to a point, as the number of trials increases. Accordingly, the 24 possible shifts were divided into 6 blocks of 4 shifts

each. For each block of shifts, a "magnitude usual shift", "magnitude shift", and "number unusual shifts" score was calculated for each subject. Point-biserial correlations were then determined for the relationship between the expectancy scores and the I-E scores.

The range of the expectancy scores was small, and this may have reduced the magnitude of the obtained correlations. We allowed this deficiency, however, since the effect would be to err on the conservative side, and our interest in such coefficients was for descriptive purposes only.

TABLE 6

POINT-BISERIAL CORRELATIONS BETWEEN PERCEIVED LOCUS OF CONTROL AND EXPECTANCY SCORES

Shifts	Scores		
	"Magnitude Usual Shift"	"Magnitude Shift"	"Number Unusual Shift"
1-4	-.39	-.06	.12
5-8	-.25	-.24	.09
9-12	-.19	-.09	.00
13-16	.27	-.07	-.34
17-20	.24	.29	.04
21-24	.14	.14	-.12

Table 6 gives the point-biserial correlations between the expectancy scores and the I-E scores. Negative coefficients indicate that the mean expectancy score of the internal control subgroup is less than that of the external control subgroup. The coefficients for the "magnitude usual shift" and "magnitude shift" scores indicate a general

tendency for the internal and external control subgroups to move in the expected direction as they make more and more shifts; that is, the mean expectancy scores of the internal control subgroups become larger than the means of the external control subgroup. No such tendency is revealed in the coefficients for the "number unusual shift" score, however. Thus, two of our three measures of expectancy showed a very general trend, with the internal control subgroup increasingly behaving as though it perceived the task as a skill situation while the external control group correspondingly came to regard the task as chance-determined.

All of the obtained coefficients were low, suggesting that under the present circumstances the relationship between perceived locus of control and expectancy was not a strong one. Yet it has already been noted that there was a very general tendency for the difference between the subgroups to move in the expected direction. We would argue that with a greater number of trials, such differences would have a greater chance to develop.

Why should more trials be necessary if Phares (1957) was able to obtain significant differences after only 13 trials? The answer may lie in a conceptual elaboration of Rotter's social learning theory. Recall that, according to Rotter (1966), expectancies generalize from specific situations to other similar situations. At the same time, the research in this area indicates that persons will behave in a situation which has been culturally defined as involving

skill as though it indeed did require the use of skill. Similarly, in situations that have been overtly defined by an experimenter as involving skill, persons behave according to a skill (internal control) orientation. The same reasoning would apply to problems involving chance. Hence, it appears that when an individual can easily discriminate a task as involving chance or skill, his generalized expectancies do not exert a strong influence.

Generalized expectancies would come into play when a situation is ambiguous -- that is, when it is not clear whether success depends upon skill or chance factors. External control subjects should respond as though the task involved chance; internal control subjects should behave as though it required skill. But the important point is this: that a person must experience an ambiguous situation before his expectancies begin to generalize to it. The subjects in Phares' (1957) experiment did not have to learn whether the task involved chance or skill; the instructions given to them provided this information. In the present study, on the other hand, the task was ambiguous, and the subjects had to learn over trials whether it was skill- or chance-determined. What would influence this learning? We suggest that the per cent of reinforcement plays an important role, for it provides a clue as to the likelihood of success on the task. Over trials, the subject learns the probability of reinforcement, and this provides information regarding the importance of skill or luck in

that task. Rotter, Liverant, and Crowne (1961) found that the differences in expectancy between subjects under skill and chance conditions was greatest when reinforcement was at the 50% level. The reason for this is that when the chances of success and failure are evenly distributed, the per cent of reinforcement tells least about the nature of the task. Similarly, in the present study, the frequency of reinforcement was at the 50% level, thereby giving greatest sway to the influence of generalized expectancies.

Our argument thus states that subjects in an ambiguous situation with 50% reinforcement will initially show variable expectancy behavior as they attempt to learn from the frequency of reinforcements whether the task involves chance or skill factors. Because reinforcement is at the 50% level, the situation remains ambiguous, and the subjects' generalized expectancies of internal or external control then begin to come into play. We are suggesting, then, that one reason why no significant differences emerged in the present study was that there were not enough trials; during most of the trials, learning was taking place.

In summary, three basic modifications of the demonstration task have been proposed. The offer of a reward should be eliminated and a verbal method of stating expectancies used; subjects should be required to shift expectancies after each trial; and the number of trials should be increased. The latter suggestion came about after certain conceptual reconsiderations. Until such modifications are

incorporated in another attempt, the results of the present demonstration task should be viewed with reservation.

CHAPTER VI

SUMMARY

One purpose of this study was to determine whether delinquents and non-delinquents differ in terms of two personality constructs. The first construct was impulsiveness, which refers to low frustration tolerance, an overemphasis on personal pleasure, and a disregard of long-range consequences of one's actions. The second was internal-external control, a dimension which varies from the perception of environmental events as under one's control at one extreme to the perception of positive and negative events as beyond personal control at the other extreme. Impulsiveness was measured by the Sc scale of the California Psychological Inventory, and Rotter's I-E scale was used to measure internal-external control.

After the Sc and I-E scales were administered to 50 delinquents and 30 non-delinquents, the results indicated the delinquents were significantly more impulsive and more inclined to hold an external control orientation than non-delinquents. A definite, but low, correlation was found between impulsiveness and perceived locus of control.

A second purpose of this study was that of demonstrating the possible influence of internal-external control

upon behavior. Thirty delinquents who obtained the highest and the lowest scores on the I-E scale performed in a discrimination task which could be regarded as involving either chance or skill. On the basis of the reports from previous investigators, it was predicted that internal control subjects would regard success on the task as skill-determined, whereas external control subjects would perform as though the task involved chance factors. The dependent variable was the subject's shifts in expectancy after success or failure over 26 trials. Three separate but related scoring methods failed to reveal a significant difference in performance between the groups. An examination of the data produced several suggestions for a modified methodological design intended to draw out more clearly the relationship between internal-external control orientation and behavior.

APPENDICES

APPENDIX A

THE Sc SCALE

INSTRUCTIONS: Decide whether each statement is true or false as applied to you. Then circle the T (true) or F (false) beside each statement.

1. T F A person needs to "show off" a little now and then.
2. T F I have had very peculiar and strange experiences.
3. T F I am often said to be a hothead.
4. T F I sometimes pretend to know more than I really do.
5. T F Sometimes I feel like smashing things.
6. T F Most people would tell a lie if they could gain by it.
7. T F I think I would enjoy having authority over other people.
8. T F I find it hard to keep my mind on a task or job.
9. T F I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards.
10. T F Sometimes I feel like swearing.
11. T F I like to boast about my achievements every now and then.
12. T F I must admit I often try to get my own way regardless of what others may want.
13. T F Sometimes I think of things too bad to talk about.
14. T F I would do almost anything on a dare.
15. T F I like to be the center of attention.
16. T F I would like to see a bullfight in Spain.
17. T F At times I feel like picking a fist fight with someone.
18. T F Sometimes I have the same dream over and over.

19. T F I do not always tell the truth.

20. T F I fall in and out of love rather easily.

21. T F I would like to wear expensive clothes.

22. T F I consider a matter from every standpoint before I make a decision.

23. T F I have strange and peculiar thoughts.

24. T F My home life was always happy.

25. T F I often act on the spur of the moment without stopping to think.

26. T F My way of doing things is apt to be misunderstood by others.

27. T F I never make judgements about people until I am sure of the facts.

28. T F Most people are secretly pleased when someone else gets into trouble.

29. T F Sometimes I feel as if I must injure either myself or someone else.

30. T F I often do whatever makes me feel cheerful here and now, even at the cost of some distant goal.

31. T F I can remember "playing sick" to get out of something.

32. T F I think I would like to fight in a boxing match sometime.

33. T F I like to go to parties and other affairs where there is lots of loud fun.

34. T F I have frequently found myself, when alone, pondering such abstract problems as freewill, evil, etc.

35. T F I keep out of trouble at all costs.

36. T F I am apt to show off in some way if I get the chance.

37. T F I am often bothered by useless thoughts which keep running through my mind.

38. T F I must admit I have a bad temper, once I get angry.

39. T F I like large, noisy parties.

40. T F I often feel as though I have done something wrong or wicked.

41. T F I am a better talker than a listener.

42. T F Sometimes I rather enjoy going against the rules and doing things I'm not supposed to.

43. T F I have very few quarrels with members of my family.

44. T F I have never done anything dangerous for the thrill of it.

45. T F I used to like it very much when one of my papers was read to the class in school.

46. T F I feel that I have often been punished without cause.

47. T F I would like to be an actor on the stage or in the movies.

48. T F At times I have the strong urge to do something harmful or shocking.

49. T F I often get feelings like crawling, burning, tingling, or "going to sleep" in different parts of my body.

50. T F Police cars should be especially marked so that you can always see them coming.

APPENDIX B

THE I-E SCALE

INSTRUCTIONS: Select one statement of each pair which you more strongly believe to be the case as far as you are concerned. Then make an X in the space beside that statement.

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, no matter how hard people try to prevent them.

4. a.___ In the long run people get the respect they deserve in this 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 determines what they're 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 well prepared 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 or nothing to do with it.

    b.___ Getting a good job depends mainly upon 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 C

THE TWO FACTOR INDEX OF SOCIAL POSITION

The Two Factor Index of Social Position was developed by Hollingshead (1965) in order to obtain an objective estimate of a person's socio-economic status. The two factors are education and occupation. Education is presumed to influence cultural tastes, while occupation serves as a guide with respect to the skill and power possessed by the individual.

Once the person's occupation is known, it is assigned a scale value from one to seven. The occupational scale ranges from executives, major professionals, and proprietors of large concerns at the upper end, to unskilled laborers at the lower end. Similarly, the individual's educational status is placed on a seven-point scale ranging from graduate professional training to less than seven years of school.

The scale scores for education and occupation are then multiplied by constants in order to obtain weighted scores. These weights were determined by multiple correlation techniques. The scale score for education is multiplied by a weight of four; a weight of seven is assigned to the scale score for occupation. The resulting scores are then added to produce the Index of Social Position Score.

Since the subjects for this study were adolescents

who may not have terminated their education and who may never have been employed for any substantial period of time, the householder's education and occupation was chosen as the most accurate references for determining socio-economic class. The adolescent would be an acceptable subject for this study when the householder's Index of Social Position Score fell within the range 61-77, which is that of the lowest socio-economic class.

APPENDIX D

INTELLIGENCE QUOTIENTS, AGES, AND INDEX SCORES FOR THE DELINQUENT GROUP

Subject	IQ	Age (Mo.)	Index
1	100	202	69
2	90	208	77
3	87	211	66
4	93	211	62
5	89	199	66
6	86	212	69
7	103	190	77
8	107	202	66
9	91	196	69
10	110	196	73
11	112	193	69
12	94	211	69
13	107	196	66
14	109	206	77
15	95	198	66
16	110	200	65
17	91	200	73
18	91	217	73
19	88	181	62
20	107	187	73
21	86	197	69
22	109	216	69
23	96	208	66
24	91	190	69
25	101	195	77
26	107	192	6
27	90	207	66
28	100	190	66
29	98	182	69
30	92	178	62
31	89	187	77
32	100	208	62
33	131	198	69
34	88	187	65
35	91	203	69
36	106	211	66
37	91	212	66
38	107	212	73
39	100	207	62
40	123	186	73
41	98	193	63
42	107	195	77

APPENDIX D Continued

Subject	IQ	Age (Mo.)	Index
43	102	201	69
44	100	211	66
45	103	191	62
46	104	210	62
47	93	192	66
48	102	215	73
49	115	199	73
50	94	195	66

APPENDIX E

INTELLIGENCE QUOTIENTS, AGES, AND INDEX SCORES FOR THE NON-DELINQUENT GROUP

Subject	IQ	Age (Mo.)	Index
1	105	202	65
2	113	203	69
3	104	202	70
4	115	196	65
5	103	200	65
6	88	212	63
7	93	202	65
8	100	214	73
9	97	170	69
10	107	173	73
11	112	198	65
12	87	220	73
13	94	198	62
14	93	210	65
15	89	193	65
16	111	197	69
17	100	184	65
18	102	198	62
19	106	180	62
20	88	201	77
21	120	175	69
22	110	193	73
23	102	200	69
24	113	193	69
25	97	209	65
26	106	183	73
27	96	208	65
28	122	180	62
29	92	194	73
30	100	195	63

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