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The prediction and intervention of criminal behavior: a comparison of actuarial and case study methods

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ABSTRACT

Conceptual differences between actuarial and case study prediction, and past empirical comparisons of predictive powers are reviewed. The major concern is with providing empirical comparisons of accuracy in predicting criminal behavior. Specifically, the criterion to be predicted is parole outcome (i.e., parole violation and subsequent reincarceration or successful termination of parole). A total of 240 inactive files, one-half representing successful parolees, the other half representing unsuccessful parolees, were randomly selected from two offices of the National Parole Service (NPS). These files permitted a retrospective comparison of case study prediction methods used by the NPS and the actuarial methods developed here. By scoring the actuarial device at the time application for parole was made and following the subsequent progress of these applicants on parole, expectancy tables were established and potential error rates could be compared with those of the existing case study system. Results indicated that a simple actuarial device based on four completely objective items, could at least provide the same rate of violation of parole as the

involved case study system permitting considerable potential savings in time and money. A specific examination of Indian parolees who constituted one-third of the samples selected, indicated significant differences in the validities of certain prediction items from non-Indian parolees. However, the use of alternative expectancy tables depending on the cultural group, did not result in significant advantages in predictive accuracy. Since those measures found to be accurate predictors could not offer a basis for the systematic intervention of impending criminal behavior a recently published scale (Environmental Deprivation Scale, Jenkins and Sanford, 1972) was employed on a portion of the sample to investigate claims of its potential for this purpose. The results obtained did not provide support for these claims. Problems associated with the scoring of the Environmental Deprivation Scale, as well as problems associated with the actuarial device developed in this study, are emphasized.

An Evaluation of Differences Between Actuarial and Case Study Methods

The actuarial or statistical method of prediction involves assigning an individual to a category on the basis of a more objectively determined score than is used in clinical or case study prediction. Under the actuarial system it will have been determined that a certain percentage of the individuals in a score category have exhibited certain behavior in the past. The probability that an individual assigned to this score category will exhibit this behavior in the future, is assumed to be the same as the percentage for his category in the past. The process of collecting and combining data which determines the score should ideally be governed by explicit, objective, and prespecified rules. The actuary, in making his predictions is not primarily concerned about understanding why his scores are able to predict. Rather, the emphasis is on determining relative frequencies in the various score categories from which to generate probabilities.

Case study or clinical methods are more directly

dependent on subjective human judgment. The unique characteristics of the individual and his environment are taken into consideration by the judge, and fitted to some theory that makes claims about predicting or understanding the future activities of the individual.

Actuarial and case study systems have been the object of numerous empirical comparisons of predictive accuracy. To evaluate these comparisons directly is beyond the scope of this discussion (it is estimated that there now exist over 100 of these studies). The emphasis here will be on discussing the issues raised as a result of this research. The intention is to demonstrate that these comparisons have been faced with complex problems and that any generalizations, even after so many studies, must be regarded with considerable caution.

Meehl (1965) concluded: "It would be difficult to mention any other domain of psychological controversy in which such uniformity of research outcome as this would be evident in the literature, (p. 27)." Meehl's statement is based on his review of 50 studies and the finding that in only one case did the clinical approach result in greater predictive accuracy.

Sawyer (1966) in his extensive survey of 45 studies reached a similar conclusion about the striking and consistent superiority of actuarial methods. Other prominent analyses (Gough, 1963; Harris, 1963; and Sarbin, 1943) again

offer support for the predictive superiority of actuarial methods.

Advantages in the efficiency of actuarial systems have been the object of only limited discussion. Meehl (1954) indicated that some of the predictions required in practical clinical settings might be left for actuarial tables leaving more time for some form of contact with patients. Sawyer (1966) has emphasized methods for calculating the possible financial advantages of mechanical prediction systems.

Holt (1958, 1970) has offered what appear to be some of the most prominent and effective arguments against the conclusions of Gough, Harris, Meehl, Sarbin, and Sawyer. Holt has suggested that the implications left by proponents of statistical devices is that clinical methods are dependent on the varied skills and idiosyncracies of the human mind. Accordingly, the judgments of clinicians are not very useful for determining the eventual activities of their clients. With the establishment of an actuarial table, any reasonably competent clerk might predict as well or better than a trained clinician. Basically, Holt's claim is that past empirical comparisons of the two methods do not permit such conclusions about the value of clinical judgment.

Specifically, Holt's arguments presented in 1958 include that past empirical comparisons have sometimes not

allowed the clinican to operate in his own domain. For example, many clinicans cannot be expected to be intimately familiar with areas such as criminal recidivism or school grades. Thus, actuarial methods may have been compared to naive or intuitive case study procedures resulting in the superior performance of statistical devices. Another important argument presented by Holt was that past comparisons of predictive accuracy emphasized only the mechanical combination of data as constituting the actuarial method. This procedure ignores the fact that human judgment was involved either in the initiation of the actuarial table, or sometimes in the collection of information on which the final score was determined.

Meehl (1965) mentioned that a number of comparisons had been added to the literature since his review in 1954, giving clinicians or other judges more opportunity to prove themselves in areas with which they were thoroughly familiar. Unfortunately, the studies to which Meehl refers as demonstrating the superiority of actuarial methods under these conditions were not listed by him.

Sawyer's study in 1966 indicates an attempt to deal with Holt's contention that the judgmental processes involved at an earlier level in the formulation of statistical predictions were being ignored. Sawyer argued that it was of little value as yet to ask if methods labelled as statistical or clinical resulted in differences in predictive accuracy,

since in many situations elements of both methods may have overlapped. The contribution of these specific components must be evaluated. Sawyer goes on to suggest a classification system consisting of various combinations of mechanical and judgmental processes. By classifying past empirical comparisons in this manner, Sawyer suggests that these studies can be made to provide considerably more information than if viewed only in terms of a gross statistical-clinical distinction. However, despite his classification of 45 studies in this manner, Sawyer still reached the same conclusions about the superiority of statistical procedures as had most other reviewers.

Holt (1970) commented on Sawyer's findings, emphasizing that it was important not to be misled by the trends apparent in Sawyer's or in Meehl's (1954)(1965) limited surveys. Holt refered to Korman's 1968 review of 40 studies comparing the prediction of managerial performance and demonstrating the consistent superiority of case study methods. None of these 40 comparisons had been listed by Meehl or Sawyer. Although admitting that the studies discussed by Korman may have had many flaws (particularly, small sample sizes) Holt reiterates that certainly no generalization about the superiority of either approach is yet warranted.

Holt again emphasized that the artificiality of a clinical-statistical dichotomy was clear. For example, judgmental processes may enter in the formulation of act-

uarial devices at many levels such as deciding on criterion behaviors, the selection of potentially useful prediction items, or in the actual rating of an individual.

According to Holt a number of the studies reviewed by Sawyer (15 out of 45) lack crossvalidated formulas, statistical weights having been used on the same sample from which they were calculated. It seems well established that multiple correlations tend to shrink when applied to a new sample although this danger diminishes when the original sample is large.

The nature of the criteria were claimed by Holt to be inadequate for some of these studies. For example, criterion measures might be taken at an arbitrary point in time, such as the ratings of employee performance by managers. Also, these criteria were frequently very complex representing an unfair problem for the clinician. For example, not only may the judge be generally unfamiliar with areas such as recidivism or school grades but these criteria may in fact be largely dependent on correctional or educational officials responsible for rating the individual.

Another aspect stressed by Holt is that in 23 out of 45 studies listed by Sawyer the judges were not clinicians, and in 15 out of 45 comparisons the judges lacked any kind of relevant training for their prediction tasks.

Holt claims that eight out of 45 comparisons had an insufficient sample size.

Six out of 45 studies were evaluated as being very unfair to judges because they received only quantitative information, i.e. a series of numerical scores.

Despite the many limitations and complexities that may have been involved in past empirical comparisons, many would still continue to be impressed by the consistent or overall superiority of actuarial methods. Also, it seems difficult to deny that there do exist extensive comparisons (e.g. Sarbin, 1943; Harris, 1963) where highly trained human judges with much more detailed information could not match the accuracy of simple actuarial devices.

However, comparisons have not emphasized the importance of comparing efficiency. It is certainly possible that both methods can vary in their accuracy depending on the specific situation, but in practical settings time and money may be the deciding factors about what system of prediction can be employed most effectively.

On the basis of the past extensive surveys listed, two conclusions are offered at this point: (1) The question of whether human judges or statistical formulas are superior is not very meaningful unless a very extensive consideration of what exactly was being predicted, by whom, and in what manner is included. (2) Practical questions related to savings of time and money have been largely ignored. In some settings differences in accuracy might be irrelevant since efficiency (in time and money) may be considered as

the more important determinant of what system is to be used.

Some may be concerned that the construction of actuarial tables does not really contribute toward a level of understanding that behavioral scientists or even practical workers seek. Perhaps some would argue that actuarial prediction basically represents a disparate collection of convenient relationships, ignoring the development of cumulative science based on the building and modification of coherent and testable theories. However, it is possible to reply that actuarial relationships may be an important first step to greater understanding, and until useful scientific theories are further developed, actuarial methods can be of important practical use.

Another important consideration is that it is obviously not feasible to construct statistical tables for predicting many forms of activity. Perhaps statistical devices are most appropriate for "gross predictions"; perhaps actuarial and judgmental processes may best be regarded as tools to be fitted to different tasks. For example, an experienced counsellor is required to make a very large number of predictions in a single session about the effects of his many specific comments on the client's activities. Obviously, an immensely cumbersome, inefficient, and interminable process of table construction would be necessary for predictions of this nature. However, an actuarial table to predict what type of client would respond favorably to exper-

ienced counselling in the long run might be very appropriate.

Even where statistical tables can be appropriately employed it always remains for the judge to decide what level of probability is acceptable before a certain course of action is taken. For example, a prediction device might be established for potential suicide risks. For some individuals the table might provide a probability of .80 that individuals in a certain category will make a suicide attempt; the human judge might still find it necessary to ignore this probability because of the cost involved in providing for the more extensive supervision of these individuals.

The Actuarial Prediction of Criminal Behavior

All of the issues presented in the first section appear to be relevant for comparisons of case study and actuarial methods for predicting criminal behavior. Very extensive projects have been initiated in this area. Some of the most prominent appear to include Burgess (1928), Borden (1928), Glueck and Glueck (1930), Mannheim and Wilkins (1955), and Ohlin (1951). An evaluation of these studies tends to indicate two major limitations. First, the emphasis appears to be on the selection of items and the calculation of validity coefficients. Base rates along with a comparison of the number of "hits", "misses", and "false alarms" are virtually ignored. As Meehl and Rosen (1955) have reported, attempts to consider base rates and appropriate cutting

scores to improve on base rates are lacking for psychometric devices generally, and this seems particularly true of actuarial devices claiming to predict criminal behavior (Glaser, 1964).

Secondly, many of the prediction items used require subjective evaluations by the rater (a notable exception is the pioneering attempt by Burgess). To illustrate this problem two representative prediction items are presented verbatim: "Socially Inadequate Personality Type: An offender who has failed to establish a place for himself in conventional society by virtue of mental deficiency, irresponsibility, or an unstable personality. He does not exhibit steadiness in his work history or especially in his family relationships," (Ohlin, 1951, p. 93).

"Job Status: Basically it involves the amount of pride the client takes in his job and the degree to which he considers himself to be important to the organization," (Jenkins and Sanford, 1972, p. 18).

Reference to even the very recent scales (i.e., Jenkins and Sanford, 1972; Barton and Jenkins, 1973) will indicate that these two major limitations continue to be ignored.

Variations exist both in the complexity of scoring systems and the nature and number of the prediction items employed. For example, Burgess did not employ a weighting system and used a large number of items, Glueck and Glueck

employed a much smaller number of items and did use a weighting system. A number of reviews of alternative scoring systems exist, (e.g. Glaser, 1964; Grygier, 1972; Mannheim and Wilkins, 1955; and Wilkins, 1964). These reviews tend to indicate that no conclusive support exists about the superiority of any scoring technique or scale. One important factor, other than time or sampling considerations, that can probably account for the lack of any strong and consistent performance, is the fact that there do not exist any exact and consistent definitions of either the criteria or the independent variables used.

However, since efficiency and simplicity are desirable the emphasis should be on the development of scales capable of being scored objectively and consistently by any clerk. Thus, it would appear that a few simple, objective nonpsychometric measures, combined using a straightforward nonweighted system, might be most appropriate.

The concern of the present study is with an area of criminal behavior where a more simplified and objective system of prediction might be warranted, i.e. parole behavior. One of the essential functions of parole boards is to predict the parole behavior of released offenders, or to estimate the probability of parole applicants completing parole successfully. Parole boards in Canada (and apparently everywhere else) rely heavily or exclusively on the case study system of pre-

diction to make decisions about the release of offenders.

Final decisions about the granting of parole may be based on any information that can be gathered about the applicant. Normally, the offender's personal characteristics, social background, circumstances surrounding his crime(s), criminal and institutional record, and future plans are considered. This information may be obtained from official records, the applicant himself, friends, relatives, employers, police, and various institutional officials. Obviously the collection and combination of this information represents an involved and time consuming system highly dependent on the skills of those who gather the information and those who make the final decisions about granting parole.

NPS defines parole as the "procedure by which persons are selected for release and a service by which they are provided with necessary controls, assistance, and guidance as they serve the remainder of their sentence at large in the community," (National Parole Board Procedures Manual, 1970, p. 1).

The criterion to be predicted, parole outcome, may involve the successful completion of parole, parole forfeiture, and parole revocation. Forfeiture refers to a conviction of an indictable offense committed after the grant of parole. Revocation refers to the termination of parole for misbehavior or a break of the conditions of the parole agreement. Thus, the concern is really with recid-

ivism over a relatively short period of time. However, it should be recognized that criminal behavior, or the absence of it, is not a straightforward dichotomy but represents a continuum. For example, courtroom procedures, or the strictness of individual parole officers who supervise the conduct of parolees, can vary widely, and behavior that in one instance can lead to further criminal conviction, may not be so regarded in another situation, and parole may be continued. This results in a prediction system where we are really attempting to predict how others will rate the released offender.

Despite this and other limitations that will be discussed later, it is suggested that the present study possesses a combination of features offering both a unique research direction from, and some practical advantages over, previous work. (1) Past research has frequently ignored a consideration of existing base rates and the potential error rates of actuarial devices. In the present study these statistics are considered essential aspects of adequate comparisons. (2) Previous work has frequently considered the success of a case study system as being dependent on the judgments of a relatively few clinicians or members of another professional group. The present attempt will involve an assessment of between 30 and 40 judges (parole officers) permitting a firmer evaluation of the case study approach. (3) The emphasis here is on the development of a device

allowing completely objective scoring procedures. As stated this is a quality frequently found lacking in many prediction devices. (4) The work to be completed will make some progress toward developing local norms. A search of the literature appears to indicate the existence of only one previous attempt to develop valid prediction items for Canadian parolees (Vichert and Zahnd, 1965) (Although Grygier, 1969 completed an extensive study of Canadian probationers) and none that deal with Indian parolees as a separate group. The latter fact seems particularly surprising considering that the rate of criminal recidivism among this cultural group is looked upon as a special problem by correctional officials (e.g. see Canadian Correction Association Survey, 1967). (5) The results of the more prominent past studies (i.e. Borden, 1928; Burgess, 1928; and Glueck and Glueck, 1930) may have become dated and a more recent examination of potential prediction items may well offer advantages in accuracy. (6) The present study attempts to develop a scale based on a small number of prediction items (five to begin with), all of which can be scored from the standard information readily available on any parole applicant without the need for special interviews or investigations. (7) The combination of prediction items will be based on a nonweighted system. (8) The items themselves will be nonpsychometric. These three features (brevity, a nonweighted system, and nonpsychometric items)

represent a much more efficient device than seems available from previous studies. (9) The last section (Part Seven) appears to represent the first attempt to crossvalidate the Environmental Deprivation Scale (E.D.S.) developed by Jenkins and Sanford in 1972. This last section represents a departure from the concern of the previous six sections. The actuarial device developed can only be applied while the applicant for parole is still incarcerated. It predicts only eventual parole outcome and cannot serve as a method for identifying impending criminal activity or offer a basis for intervention during the offender's release as the E.D.S. may be able to do.

GENERAL METHOD

Sample

A total of 240 inactive files were examined from the Winnipeg and Thunder Bay District Offices of the NPS. All subjects were male and had been incarcerated in institutions across Canada at the time application for parole was made. It is estimated that the majority of the sample applied from institutions within the regions of the offices selected. The sample included those convicted for a large variety of crimes and accordingly, the length of incarceration would frequently range from a period of a few months to over five years. Indian parolees constituted one-third of the entire sample. One hundred and twenty subjects (60 violators and 60 nonviolators) were used in Parts One, Two, Three, and Four to establish the actuarial criteria. The remaining 120 (60 violators and 60 nonviolators) were used in Parts Five and Six to crossvalidate these criteria.

Procedure

The files were selected at random from the files of the two offices. It was predetermined that 50% should be violators and 50% should be nonviolators. It was estimated that one-third of the case load supervised by these offices was of Indian origin and it was predetermined that 80 cases should be

Indians. This may be a characteristic that would not be expected in samples taken from some district offices (e.g. offices in some large urban areas). However, both cultural groups will be examined separately in later sections.

The term, "inactive files" refers only to those cases whose periods of parole supervision had already been terminated, either successfully, or by being reincarcerated because of parole forfeiture or revocation. All relevant information in these files was arranged in a uniform or orderly manner permitting a rapid scoring process. Also, for purposes of efficiency only the first parole period of any subject was considered; that is, some individuals may have been granted parole on more than one occasion. None of the files selected had been inactive for more than approximately six years.

The statistical prediction device developed in the first six parts of this study was scored at the same time applications for parole were being investigated using the case study system of the NPS (according to the files). The prediction device was composed of five objective dichotomized items scored on the basis of the standard official information available in the files. The number of subsequently successful and unsuccessful parolees demonstrating the two classifications of each dichotomized item was calculated. Chi Square tests were applied to determine which of the dichotomized item classifications distinguished significantly between subsequently successful and unsuccessful parolees. From the Chi Square values phi coefficients (item validities) could be calculated against the occurrence of the criterion, parole

outcome. By retaining those dichotomous item classifications found to discriminate significantly between subsequently successful and unsuccessful groups expectancy tables could eventually be established. This was done by assigning integers of either zero or one for each item. An item score of zero demonstrated the item classification significantly characteristic of potentially unsuccessful parolees, and a score of one when demonstrating an item classification significantly characteristic of subsequently successful parolees. This procedure provided a maximum total score range from zero to five. Various cutting scores could be selected providing different expected violation and unfair rejection rates. The potential success rate in predicting from the actuarial device could then be compared to the potential success rates if prediction had occurred from existing case study procedures. Further details on these procedures can be more efficiently described in later sections. Part Seven of this study is concerned with another form of prediction. Monthly scores on another scale were obtained for 60 released parolees to determine if these could in some way be related to impending criminal activity or perhaps offer a basis for intervention. The details of this procedure can be more efficiently described in Part Seven.

PART ONE: A SEARCH FOR VALID PREDICTION ITEMS

Procedure

Previous scales demonstrate considerable variation both in the nature of the items used and the method of scoring. No conclusive support exists for the superiority of any particular approach. The five prediction items used here were selected on the basis of a number of requirements. First, past indications of predictive powers were deemed necessary. Thus, the items selected are rough approximations to other items found in previous scales in which they demonstrated some validity, primarily these include items developed by Jenkins and Sanford (1972), Ohlin (1951), and Vichert and Zahnd (1965). Second, modifications in the original definitions of these items were based on the goals of objectivity and efficiency. That is, definitions permitting any form of subjective interpretation were eliminated. Also, the information required to score the items had to be readily obtainable from the standard official information in the parole files. Third, those items amenable to a process of dichotomization were selected. Dichotomization of the items again permitted freedom from subjectivity and inefficiency. For example, items

dealing with the prospects of employment and accommodation of parole applicants could take many values. Not only would the scoring procedures for such items be lengthy but precise measurement might not be possible and subjectivity would enter. Fourth, all items were nonpsychometric, again to capitalize on the potential efficiency of the actuarial approach. While not all psychometric items would necessarily require subjective interpretations, all would require considerable time in scoring. Table 1 presents the the descriptions of the items selected.

All applicants for parole were scored on their values on the five variables at that point in time when they were being investigated using the case study system of the NPS. By following the subsequent progress (i.e., either successful termination of parole or violation of parole and reincarceration) of these successful applicants the potential success rate of the actuarial device could be estimated. First, to determine if significant differences existed between proportions of subsequent violaters and nonviolaters on each dichotomous item classification, Chi Square tests were applied. For example, the first dichotomous item refers to the number of previous incarcerations of the parole applicant, whether this had involved no previous periods of incarceration prior to the sentence on which parole was granted, or whether the applicant had experienced incarceration previously on one or more occasions. It might be

TABLE 1

A Description of the Five Prediction Item Selected

1. Number of Times Incarcerated: This value can be determined simply by referring to the offender's official criminal record. The number of times incarcerated refers to the number of times the offender has been held in custody (no matter how brief the period) prior to the sentence during which parole was granted.
2. Accomodation With or Away From Relatives: "Relatives" refers not only to the offender's immediate family members but to any relatives.
3. Employment: This item refers to any form of regular paid work whether of a full time or part time nature.
4. Education: Those offenders who had not completed education at an elementary level or did complete but did not continue their education past public school were distinguished from those who had some form of formal education beyond the elementary level no matter of what duration.
5. Age: Only two categories were considered, those offenders aged 21 and below and those aged 22 and above.

Note:(a)Items 2 and 3 were scored at the time application for parole was being considered. Thus, applicants could not at the time be residing with relatives or working and these items

were scored according to whether definite arrangements for employment or accommodation had been made, meaning that employment and accommodation had been confirmed, (see Part One, Procedure).

(b) See Table 2 for the point of dichotomization selected for the five prediction items.

reasonable to expect that a larger proportion of subsequent parole violaters than subsequent nonviolaters had experienced previous incarceration.

The second dichotomous item refers to accommodation with or away from family members during the parole period. Again, it might be reasonable to predict that a larger proportion of subsequent parole violaters than subsequent nonviolaters would not reside with family members. For the remaining three variables the expectation might be that a larger proportion of subsequent nonviolaters than violaters would have employment, greater education, and an older average age level.

By calculating Chi Square values in this manner the significance of the difference between proportions of subsequent violaters and nonviolaters demonstrating the item classifications selected could be determined. Once Chi Square values were available, validity coefficients (phi coefficients) of the individual items against the occurrence of parole outcome could be calculated. Validity coefficients (phi coefficients) for the individual items are applicable to 2 x 2 tables where the dichotomous variables are assumed to be discrete. However, in practice it is widely used when the two variables are obviously not discontinuous. The significance of the phi coefficients is tested by referring to a Chi Square Table with one degree of freedom.

With the establishment of items significantly dis-

criminating between subsequent nonviolaters and violaters, scores could be assigned to each item classification. If an item classification was associated with subsequent violaters a score of zero could be assigned, if the other classification was associated with subsequent nonviolaters a score of one could be assigned, allowing a total score range from zero to five. As stated, expectancy tables could then be established with a determination of potential violation and unfair rejection rates with the selection of certain cutting scores. Further details on the nature of these expectancy tables will be described in Part Two. At this stage they are mentioned for the purpose of providing some rationale for the procedures followed in this section.

In this section intercorrelations between significant items were also calculated. Integers of zero or one were assigned to represent the two categories of each dichotomous variable and a phi correlation coefficient was calculated.

Results

Table 2 presents data on the significance of the five items selected. It can be seen that only four of these items discriminate significantly between potentially successful and unsuccessful parolees. This means that significantly more potential violaters will have been previously incarcerated on one or more occasions than potential nonviolaters,

TABLE 2

The Application of Chi Square in Testing the Significance of the Difference Between Proportions of Subsequent Parole Violaters and Nonviolaters Deomonstrating the Item Classication Selected

Item 1: Number of Times Incarcerated

	Violaters	Nonviolaters
0	20	39
1+	40	21
	60	60

$X^2 = 13.00$; $p < .001$

Item 2: Accomodation With or Away From Relatives

	Violaters	Nonviolaters
With	24	43
Away From	36	17
	60	60

$X^2 = 12.00$; $p < .001$

Item 3: Employment

	Violaters	Nonviolaters
Yes	38	49
No	22	11
	60	60

$X^2 = 4.00$; $p < .05$

Item 4: Education

	Violaters	Nonviolaters
Gr. 8+	31	33
-Gr. 8	29	27
	60	60

$X^2 = .13$; $p > .70$

Item 5: Age

	Violaters	Nonviolaters
22+	24	39
21-	36	21
	60	60

$X^2 = 7.46$; $p < .01$

significantly more potential violaters will have no accommodation with family members arranged at the time of parole application than potential nonviolaters, significantly more potential violaters will have no employment arranged at the time of parole application than potential nonviolaters, and significantly more potential violaters are 21 years old or younger.

Table 3 presents the validity coefficients against the occurrence of parole outcome for the significantly discriminating items. These values range from .32 for previous incarcerations and accommodation with family members, .25 for the item dealing with age, and to .18 for employment arrangements.

Item intercorrelation coefficients between the significant items presented in Table 4 range from .63 to -.22. The highest degree of intercorrelation is exhibited between the items dealing with previous incarceration and employment, the lowest between the employment and age items. All intercorrelation coefficients are significantly different from zero beyond the .05 level.

Discussion

The items selected obviously do not represent a detailed analysis of the many areas of an individual's background or intentions having the potential to effect criminal recidivism. However, it is emphasized that the nature and number of the items chosen may offer important advantages in

TABLE 3

Significant Item Validities Against Occurrence of Parole Outcome

ITEMS	VALIDITIES
1. Times Incarcerated	.32
2. Accomodation With or Away From Relatives	.32
3. Employment	.18
4. Age	.25

TABLE 4

Item Intercorrelations For Those Items Found to be Significantly Related to Parole Behavior

ITEMS	2	3	4
1. Times Incarcerated	.20	.63	.27
2. Accomodation		.19	.20
3. Employment			-.22
4. Age			

efficiency and objectivity over items found in many other scales. All of the information required is readily obtainable from standard official documents in an applicant's file and there is no need to conduct special interview or investigation procedures to score any item. Scoring of the items can be completed in a matter of a few minutes. Subjective interpretation would not seem possible; a very high degree of rater-hater reliability being expected. Considerable information has been lost, particularly through the number of items used and the process of dichotomization. How much information to disregard for the purposes of objectivity and efficiency is an essential problem associated with development of all actuarial devices. Constant comparisons with existing methods and revisions are the solutions.

Generally the Chi Square values obtained appear to follow the trends demonstrated by previous research, that these areas of an individual's life are in some way associated with criminal recidivism. These exact values as well as the validity and intercorrelation coefficients observed could become the object of considerable speculation on why they exist. However, the concern here is solely with the development of an adequate actuarial prediction device and not to arrive at any greater "understanding" of criminal behavior in this sense. At this stage the purpose of the present study which is the identification of certain prediction items with satisfactory properties, has been achieved. While the values obtained

indicate only limited covariation with the criterion of parole outcome, the essential task of comparing their predictive accuracy with that of case study methods remains for the following sections.

It should remain clear that only 120 subjects (60 violators and 60 nonviolators) were used in this part as well as in Parts Two, Three, and Four to establish the actuarial criteria and to provide some very rough indications of expected trends in predictive accuracy. Another 120 subjects (60 violators and 60 nonviolators) are to be used in Parts Five and Six to crossvalidate these criteria.

PART TWO: A COMPARISON OF THE PREDICTIVE ACCURACY OF CASE STUDY AND ACTUARIAL METHODS

Procedure

The objective of this section is to compare possible trends in predictive accuracy of the four significant prediction items and the existing case study system. As stated, after the establishment of significant items, scores were assigned to each dichotomous item classification. That is, if an item classification was significantly characteristic of subsequent violaters a score of zero was assigned for that item, if the individual obtained an item classification significantly characteristic of potential nonviolaters a score of one was given for that item. This procedure resulted in a total score range from zero to four. By constructing an expectancy table demonstrating the total score distribution of all the subsequently unsuccessful and successful parolees, potential cutting scores could be selected providing different expected violation and unfair rejection rates had that cutting score actually been used as a basis for releasing and denying applicants for parole. These expected error rates provided by the actuarial device could then be compared to the expected rate provided by the case study system.

In addition to the procedure described above, graphic representations of total score distributions for subsequently successful and unsuccessful parolees, as well as for both groups combined, were constructed.

The validity of the total score was determined by using the point biserial method. Point biserial correlation provides a measure of the relationship between a continuous variable (the total score category) and a two categoried or dichotomous variable (parole outcome).

To determine if the validity coefficient for the total score was significantly superior to the validities of individual prediction items, a t test was applied.

To determine the degree of correlation individual prediction items experienced with the total score the point biserial method was again employed.

Results

Table 5 presents the total score distribution of successful and unsuccessful parolees along with possible cutting scores to determine release on parole or continued incarceration. An expected violation rate of 12% and an unfair rejection rate of 38% is demonstrated if the highest possible cutting score were to be chosen. That is, it would be expected that of all those applicants granted parole on the basis of the cutting score, 12% would be expected to violate the parole agreement. Using this same cutting score

TABLE 5

Possible Cutting Scores Using Total Score Categories

TOTAL SCORE CATEGORY	NON-VIOLATORS	VIOLATORS	VIOLATION RATE	UNFAIR REJECTION RATE
4	14	2	13%	38%
3	24	15	31%	18%
2	20	16	36%	2%
1	2	16	45%	0%
0	0	11	50%	0%

46 out of a total of 120 applicants or 38% would be denied parole unfairly. As the cutting score is decreased the violation rate increases as the unfair rejection rate decreases, until with the lowest possible cutting score no applicant would be expected to be denied parole unfairly but 45% of those applicants granted parole would be expected to violate it.

The graphic representations of total score distributions in Figure 1 for successful and unsuccessful parolees indicate roughly normal distributions for both groups but also that a marked difference exists between subsequent violators and nonviolators.

Table 6 again presents the validities of individual items against parole outcome but along with the validity of the total score and with the degree of correlation of individual items with the total score. The test of significance indicated the validity of the total score to be significantly superior to any individual item validity coefficient ($t = 2.34$; $df = 117$; $p > .02$).

Discussion

Recent statistics (National Parole Board, Comparative Statistics, July, 1973) indicate that out of 42, 198 applicants granted parole over the past 173 month period, a total of 6,974 parolees have had their parole forfeited or revoked. This represents an average violation rate of approximately 16% produced by existing case study methods.

A true comparison between the success rate of existing methods and the prediction device developed here is not possi-

FIGURE 1

A Graphic Representation of Distribution of the Total Scores of Successful and Unsuccessful Parolees

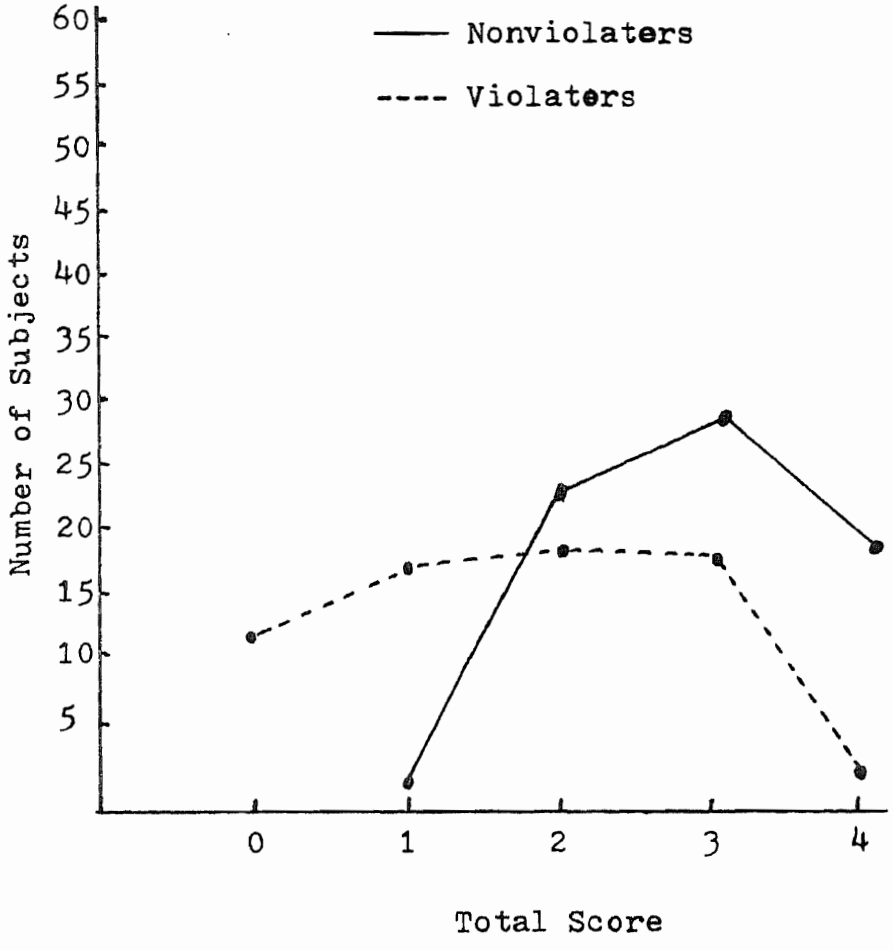

TABLE 6

Individual Item Validities, Item Correlation With Total Score, and Validity of Total Score

ITEM	VALIDITIES	CORRELATION WITH TOTAL SCORE
1. Times Incarcerated	.32	.50
2. Accomodation	.32	.27
3. Employment	.18	.14
4. Age	.25	.75
TOTAL SCORE	.50	

ble because of the sampling procedures used. The success rate of the case study system was produced by a total population eligible and applying for parole. The results of the statistical method were produced by a sample already granted parole (although the prediction items were actually scored before the sample was granted parole). Of this sample 50% were eventually successful on parole and 50% were eventually unsuccessful, while 84% of the total population was successful and 16% were unsuccessful.

However, if the decision were made that those applicants with a total score of less than four on the actuarial device should be denied parole (see Table 5) the expected violation rate would be approximately 13%. If the two methods could be directly compared this would represent a 3% advantage over the violation rate under the case study system. This advantage would not be statistically significant.

To achieve a violation rate of 13%, 38% of all applicants would be expected to have parole denied unfairly. That is, they would be denied on the basis of their total score being less than four, when in fact they would have the capability of successfully completing parole.

While the rate of violation under the existing system appears to have been generally stable over the years, this figure could possibly be discouraging considering that a much greater percentage of applicants are being denied parole. For example, from January to July in 1970, 4,320 applications for parole were received and 1,414 were denied, or approximately 30%. During the same period in 1971, 4,574 applications were

reviewed but 1,594 were denied, or 34%. From January to July in 1972, 4,396 applications were made but 2,137 were rejected, or 49%. From January to July in 1973, 4,331 applications were investigated but 2,650 or 61% were rejected. It is possible that this increase in the rejection rate from 30% to 61% over a three year period with no corresponding reduction in the rate of violation, indicates that factors related to criminal recidivism are generally not being identified and that a larger proportion of applicants for parole are being denied unfairly (although certainly other factors may be responsible).

The rate of unfair rejection using case study methods cannot be determined. This is a serious limitation of the present comparison of predictive accuracy. To determine the unfair rejection rate under the existing system, predictions would have to be made in the usual way and then disregarded, and all applicants be released. Considerable and justifiable opposition to such a procedure would be expected considering the risk to public safety.

Whether it is more important to reduce the rate of parole violation at the expense of increasing the rate of unfair rejections could become the object of lengthy debates. However, since there is no way to determine the rate of unfair rejection under the present prediction system, it is obviously possible only to be concerned with the comparison of violation rates in the present study. There may be indications that the actuarial method can at least match the rate of violation of an involved case study system at the expense of unfairly

denying 38% of all applicants. Also, considering that the total rejection rate under the case study system has doubled over the past three years with no corresponding reduction in the violation rate, it is possible to suggest that the rate of unfair rejection under existing methods may not be very far removed from this figure of 38%. It might be suggested that the majority of correctional officials and members of the public would not be concerned with some increases in the unfair rejection rate (if there are increases using the actuarial system) if the newer system could at least match the violation rate of existing methods. The advantage of the new method obviously does not lie with the potential violation rate per se, but with the substantial savings of time and money which might be properly allocated towards increased attempts at rehabilitation and supervision, rather than for the prediction of parole outcome while the applicant is still incarcerated.

Some objections may be raised at presenting expectancy tables at this stage. The tables are not based on a crossvalidated procedure, item scores having been used on the same sample from which the validities of individual items were calculated. However, at this stage it is suggested that these tables can at least provide some indication of prediction trends that might be expected, rather than providing validity coefficients alone. A second sample will be selected in Part Four in an attempt to confirm the

present findings.

It is also suggested that multiple correlation procedures might be of limited value in this case. Previous extensive surveys have provided some indication that a simple weighting system, such as assigning an equal weight to all relevant predictors often works as well as the more complex weighting procedures (e.g., Madden and Bottenberg, 1963; Trattner, 1963). On the basis of other surveys (e.g., Burkett, 1964) it has also been suggested that sample size must meet certain standards before undue validity shrinkage can be avoided when crossvalidation is attempted. For example, a sample of 100 cases might justify the weighting of no more than three predictors, or perhaps four predictors might be weighted with a sample of 250. Meehl (1965) has suggested that while crossvalidation shrinkage may be important for methods of prediction where regression equations are used (since the actual magnitude of a somewhat unstable statistic like a beta weight is involved to increase predictive accuracy) the problem is not as serious where a simple count of items or dichotomous procedure is used.

The validity of the total score was also calculated and found to be significantly superior to the validity of any individual prediction item, providing another indication that the use of total score categories is desirable.

Moderate to limited covariation of individual items with the total score was also revealed.

Generally those psychometric properties considered tend to be satisfactory. Again considerable discussion might be allocated to why certain relationships appeared but as stated the concern at this stage must be solely with the development of an adequate prediction device. To establish functional relationships would obviously require more sophisticated studies involving the repeated and systematic manipulation of those factors thought to be related to criminal recidivism.

PART THREE: A COMPARISON OF THE VALIDITY OF THE PREDICTION ITEMS FOR INDIAN AND NON-INDIAN PAROLEES

Procedure

It was estimated that approximately one-third of the case load supervised in the areas from which the sample was taken was of Indian origin. On the basis of proportional stratified random sampling 20 Indians were included in the sample of 60 nonviolaters and 20 in the sample of 60 violaters. For the purposes of this study the term, "Indian origin" refers to those offenders whose parents were both Indian.

Following the same procedure as in Part One, Chi Square values and validity coefficients were calculated for each dichotomized item for Indians and non-Indians as separate groups. For the Indian group Chi Square frequencies were small and the value of Chi Square was calculated using Yates's correction for continuity. To determine if the differences of individual item validity coefficients between the two groups were significant Fisher's Zr transformation was used. Item intercorrelations within the two groups were calculated in the same manner as described in Part One.

Results

Differences in Chi Square values between the two groups are evident in Table 7. The number of previous incarcerations, accomodation, employment, and educational level are items that discriminate significantly between subsequent Indian violaters and nonviolaters. However, for non-Indians as a separate group only accomodation, educational level, and age are the items discriminating between potentially successful parolees and recidivists.

Table 8 reports the validity coefficients for individual items for both groups against the occurrence of parole outcome. It is noted that the validity coefficient for the number of previous incarcerations for Indian parolees is significantly different from the value of this item for non-Indians. It appears that this item is related to parole outcome only for the Indian group and that there is no significant relationship for non-Indians. The second item dealing with accomodation is related to parole outcome for both groups and there is no significant difference between the values of these validities for the two groups. Employment is related to parole outcome for Indians but not for non-Indians. Educational level is significantly related to parole outcome for both groups and any difference in the validity coefficients observed must be attributed to sampling considerations. Age appears to be significantly related to parole outcome for non-Indians but not for Indians, however, the difference between these

TABLE 7

The Application of Chi Square to Determine if Differences Exist in the Validities of Prediction Items for Indian and Non-Indian Parolees

Indian Parolees

Item 1: Times Incarcerated

	Violaters	Nonviolaters
0	0	13
1+	20	7
	20	20

$X^2 = 15.51$; $p < .001$

Item 2: Accomodation

	Violaters	Nonviolaters
With	6	15
Away From	14	5
	20	20

$X^2 = 6.44$; $p < .02$

Non-Indian Parolees

Item 1: Times Incarcerated

	Violaters	Nonviolaters
0	20	26
1+	20	14
	40	40

$X^2 = 1.84$; $p < .20$

Item 2: Accomodation

	Violaters	Nonviolaters
With	18	28
Away From	22	12
	40	40

$X^2 = 5.12$; $p < .05$

Indian Parolees

Item 3: Employment

	Violaters	Nonviolaters
Yes	10	18
No	10	2
	20	20

$X^2 = 9.11$; $p < .01$

Item 4: Education

	Violaters	Nonviolaters
Gr.8+	4	15
-Gr.8	16	5
	20	20

$X^2 = 10.06$; $p < .01$

Item 5: Age

	Violaters	Nonviolaters
22+	7	9
21-	13	11
	20	20

$X^2 = .10$; $p < .80$

Non-Indian Parolees

Item 3: Employment

	Violaters	Nonviolaters
Yes	28	31
No	12	9
	40	40

$X^2 = .58$; $p < .50$

Item 4: Education

	Violaters	Nonviolaters
Gr. 8+	27	18
-Gr. 8	13	22
	40	40

$X^2 = 4.19$; $p < .05$

Item 5: Age

	Violaters	Nonviolaters
22+	17	30
21-	23	10
	40	40

$X^2 = 8.79$; $p < .01$

TABLE 8

Item Validities Against Occurrence of Parole Outcome for Indian and Non-Indian Parolees and the Significance of the Difference Between Item Validities

ITEMS	INDIAN VALIDITIES	NON-INDIAN VALIDITIES	SIGNIFICANCE OF THE DIFFERENCE
1. Times Incarcerated	.63*	.14	Z=3.00;p.004
2. Accomodation	.40*	.24*	Z=.89;p.27
3. Employment	.48*	.09	Z=2.16;p.04
4. Educational Level	.50*	.23*	Z=.157;p.12
5. Age	.04	.34*	Z=1.57;p.12

*$p < .05$

two validity coefficients are not significant.

Table 9 presents item intercorrelations for those items found to be significantly related to parole outcome for Indians and non-Indians. These values generally indicate limited to moderate covariation with each other for the Indian group but no covariation with each other for the non-Indian group.

Discussion

The rate of crime among, and the rehabilitation of Indians has been the object of considerable concern among correction officials (see Canadian Corrections Association Survey, 1967). However, a search of the literature reveals that the parole behavior of this cultural group compared to other groups, has apparently received very little attention.

It is possible that some form of cultural classification used alone as a prediction item might itself be more accurate and efficient than those items selected here for a comparison. However, there may be a number of limitations associated with this kind of approach. First, it would not identify specific factors in the environment of parole applicants that are related to recidivism. Second, those who are faced with the responsibility of granting parole, as well as the applicants themselves, might well regard the use of such classifications as prediction items with consi-

TABLE 9

Item Intercorrelations for Those Items Found to be Significantly Related to Parole Behavior for Indian and Non-Indian Parolees

INDIAN ITEMS	2	3	4
1. Times Incarcerated	.51	.27	.33
2. Accomodation		.47	.22
3. Employment			.003
4. Educational Level			
NON-INDIAN ITEMS	**4**	**5**	
2. Accomodation	.05	.09	
4. Educational Level		.09	
5. Age			

derable antagonism. Obviously such issues could become the object of an extensive debate not directly related to the purpose of this section of further investigating the usefulness of the items developed so far.

The results indicated that differences in the value of certain prediction items did exist for Indian and non-Indian offenders. Considerable discussion might be alloted to the causal relationships involved. However, as already stated, such speculation is not in accord with the purpose of this study which is to develop an adequate prediction device.

PART FOUR: A COMPARISON OF ALTERNATIVE PREDICTION SCALES FOR INDIANS AND NON-INDIANS

Procedure

The objective of this section is to determine if the differences observed in the validities of individual prediction items between the two groups are important enough to warrant the use of alternative expectancy tables. To determine the expected violation and unfair rejection rates the same method as described in Part Two was used. By comparing these rates as produced by alternative scales based on different items, some preliminary indications of potential advantages in predictive accuracy could be obtained. Also, as discussed in Part Two the most appropriate rate for comparison at this stage was deemed to be the number of potential violations.

Results

The A section in Table 10 is based on the original scale developed in Part Two. The table is comprised of Items 1, 2, 3, and 5 as described in Table One of Part One. These items were found to discriminate for the entire sample but it was later found that Item 5 did not discriminate significantly

TABLE 10

A Comparison of Error Rates Produced by Prediction Scales Based on Different Items

	A Original Scale for Indians Only	B Indian Scale for Indians	C Original Scale for Non-Indians Only	D Non-Indian Scale for Non-Indians
	Nonvio. Violaters	Nonvio. Violaters	Nonvio. Violaters	Nonvio. Violaters
4	7 0	5 0	7 2	
3	8 2	7 4	16 13	11 5
2	4 4	6 2	16 12	16 15
1	1 6	2 7	1 10	11 17
0	0 8	0 7	0 3	2 3
	20 20	20 20	40 40	40 40
	Violation Rate=0%	Violation Rate=0%	Violation Rate=22%	Violation Rate=31%
	Unfair Rejection =33% (Based in Items 1, 2, 3, and 5)	Unfair Rejection =38% (Based on Items 1, 2, 3, and 4)	Unfair Rejection =41% (Based on Items 1, 2, 3, and 5)	Unfair Rejection =36% (Based on Items 2, 4, and 5)

between potential Indian violaters and nonviolaters. If the original scale were to be used for Indians at the cutting score selected, it would be expected that a violation of 0% and an unfair rejection rate of 33% would occur. The B section indicates potential violation and unfair rejection rates had a table been used comprised solely of those items found to discriminate between subsequently successful and unsuccessful Indian parolees, i.e., Items 1, 2, 3, and 4. It is seen that the violation rate is again 0% with an unfair rejection rate of 38%. The difference in the unfair rejection rate can be attributed to sampling considerations (X^2 = .21; $p < .70$). The results of C section might be expected if the original scale based on Items 1, 2, 3 and 5 had been used for the non-Indian group when it was determined in Part Three that only Items 2, 4, and 5 discriminated significantly for this group. The C section provides a violation rate of 22% and an unfair rejection rate of 41%. If the scale in D section had been used, based on Items 2, 4, and 5 a violation rate of 31% and an unfair rejection rate of 36% would be expected. The differences in the violation and unfair rejection rates can be attributed to sampling considerations (X^2 = .0003; $p < .99$ and X^2 = .42; $p > .50$).

Table 11 reports the expected violation and unfair rejection rates using the combinations of alternative prediction scales. It is evident that the rate of unfair rejection remains relatively stable regardless of the tables used.

TABLE 11

A Comparison of the Expected Violations and Unfair Rejection Rates Using Combinations of Alternative Scales

	A Original Scale Developed in Part Two, Based on Items 1, 2, 3, and 5	B Original Scale for Non-Indians Items 1, 2, 3, and 5 + Indian Scale for Indians, Items 1, 2, 3, and 4	C Non-Indian Scale for Non-Indians, Items 2, 4, and 5 + Indian Scale for Indians, Items 1, 2, 3, and 4	D Non-Indian Scale for Non-Indians, Items 2,3, and 5 + Original Scale for Indians, Items 1, 2, 3, and 5
Expected Minimum Violation Rate and Unfair Rejection Rate Based on a Sample of 120 Parolees	10%	14%	24%	17%
	38%	40%	37%	35%

The expected violation rate produced by the original scale for the entire sample combined represents a 10% advantage over the violation rate in C section, produced by a combination of specialized scales, this advantage was not found to be statistically significant, ($X^2 = 3.08$; $p < .10$).

Discussion

The results indicate that any difference observed in violation or unfair rejection rates produced by alternative prediction scales can be attributed to sampling considerations. Thus, even though some significant differences in the validities of individual prediction items were observed depending on the cultural group, expectancy tables are considered to provide more complete and definite information about expected trends in accuracy, and these indicate that such differences did not warrant the use of modified prediction scales. An attempt will be made to confirm these trends in Part Six by drawing another random sample, since, at this stage item scores were based on the same sample from which the validities of individual items were calculated. At this point it is then suggested that the continued use of the original scale developed in Part Two, applied to all applicants irregardless of cultural group is justified not on the basis of significant advantages in predictive accuracy but on the basis of efficiency.

Two further interesting trends were observed at this

stage. First, the unfair rejection rate has remained relatively stable for all scales, that is, in percentage figures, generally from the mid to high thirties. Second, the scales selected seem particularly satisfactory for the Indian group, since with the selection of the highest possible cutting score no violations would be expected for this group.

The fact that no official statistics appear to exist on the rate of parole violation for individuals from an Indian cultural background limit the value of the present comparisons. With the collection of such statistics a more complete and definite comparison with case study methods would obviously be possible.

PART FIVE: CROSSVALIDATION OF THE GENERAL PREDICTION SCALE

Procedure

A second sample of 60 unsuccessful and 60 successful parolees was selected in the same manner as the first sample. All 120 parolees were scored directly on the four prediction items. Graphic representations of total score distributions for violaters and nonviolaters separated and combined were again constructed. As in Part Two expectancy tables showing potential trends in violation and unfair rejection rates using different cutting scores were constructed.

Results

Graphic total score distributions (Figures 3 and 4) again demonstrate essentially normal distributions with the exception of the successful group. This particular group has a high frequency of the maximum score possible. These distributions clearly illustrate differences in the total scores obtained between successful and unsuccessful parolees.

Table 12 again reveals increasing potential violation rates and decreasing unfair rejection rates as the cutting

FIGURE 2

A Graphic Representation of Distribution of the Total Scores of Successful and Unsuccessful Parolees

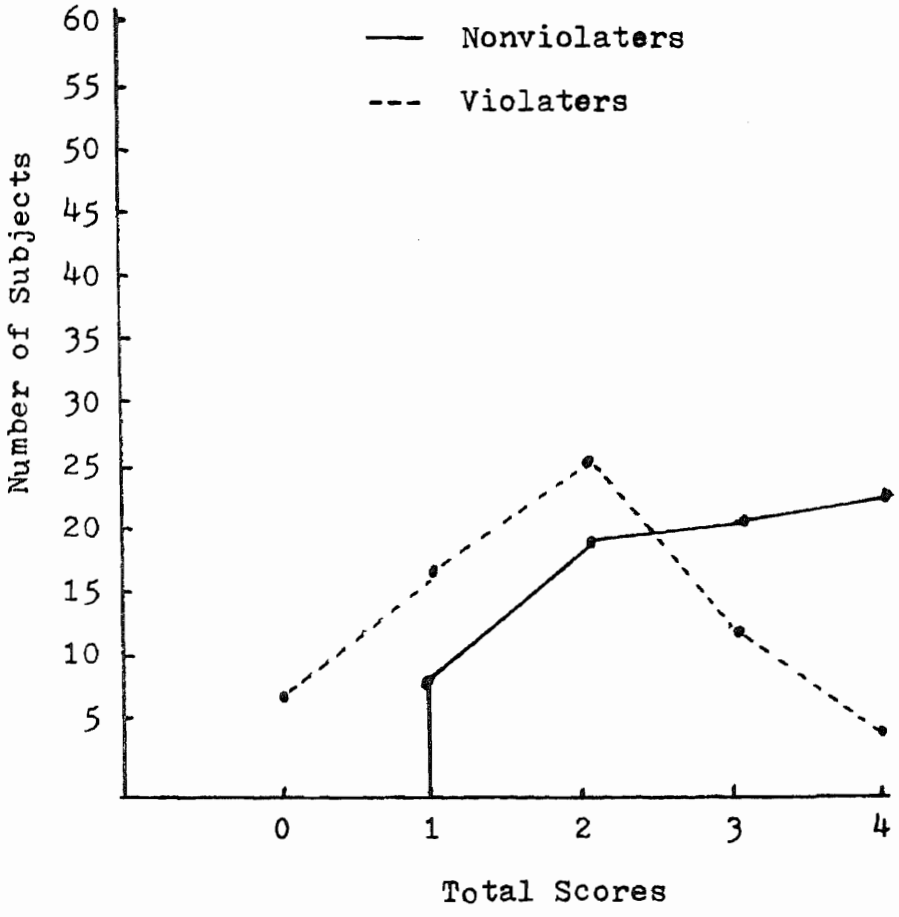

FIGURE 3

Graphic Distribution of Total Scores for the Entire Sample

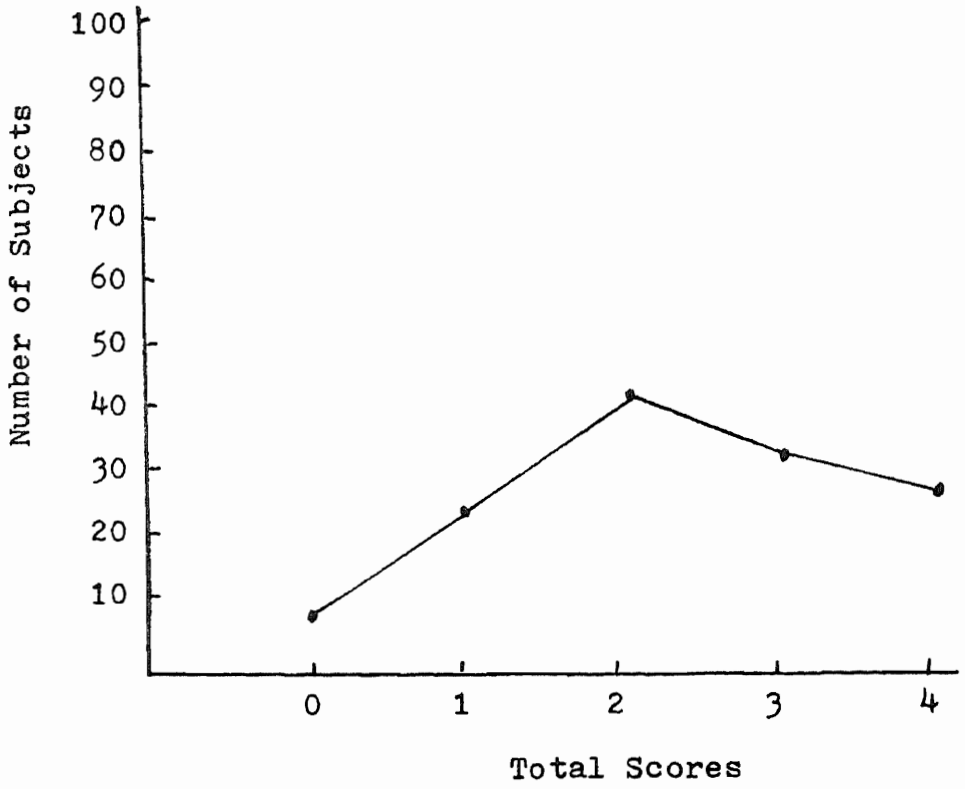

TABLE 12

Possible Cutting Scores Using Total Score

Categories with Crossvalidation Sample

TOTAL SCORE CATEGORY	NON-VIOLATORS	VIOLATORS	VIOLATION RATE	UNFAIR REJECTION RATE
4	19	4	17%	34%
3	17	10	28%	20%
2	17	23	41%	6%
1	7	16	47%	0%
0	0	7	50%	0%

score is lowered. A minimum violation rate of 17% and a maximum unfair rejection rate of 34% can be expected with the highest possible cutting score. With the lowest cutting score no unfair rejections are observed but a 53% violation rate is expected.

Discussion

Some problems associated with comparing the results of actuarial and the case study methods of the NPS have already been discussed in Part Two. However, it is evident that similar success rates were produced by the table originally selected. Potential violation and unfair rejection rates associated with different cutting scores follow the same trend as observed in Part Two. With the selection of the highest possible cutting score the actuarial device again matches the violation rate produced by the case study system.

The violation rate produced here comes at the expense of unfairly rejecting 34% of all applicants. In Table 12 it is observed that the total rejection rate (both correct and unfair rejections) is approximately 81%. Approximately 42% of these rejections are unfair. As stated, the NPS is rejecting about 60% of all applicants, and thus to match the unfair rejection rate observed here, about 50% of these case study rejections would have to be denied parole unfairly. However, as already discussed the total rejection rate of the NPS has doubled over the past few years with ab-

solutely no reduction in the violation rate. This possibly indicates that a large percentage of applicants are being denied parole unfairly and may offer some support for the suggestion that the rate of unfair rejection under the two methods of prediction are not far apart.

PART SIX: CROSSVALIDATION OF ALTERNATIVE PREDICTION SCALES FOR INDIAN AND NON-INDIAN PAROLEES

Procedure

This section is concerned with confirming the trends observed in Part Four where prediction scales based on different items depending on the cultural group were used. Results are based on the second sample selected in Part Five which again included 20 successful and 20 unsuccessful Indian parolees. Again parolees were separated into the two cultural groups and scored directly on the appropriate prediction items. Expectancy tables showing potential trends in violation and unfair rejection rates were again constructed.

Results

Table 13 provides comparisons of the minimum violation rates and corresponding unfair rejection rates using the original and specialized tables for the two cultural groups. It can be seen that using the "Indian Scale" for Indians results in a 10% advantage in violation rate ($X^2 = .009$; $p < .95$), while providing a 15% disadvantage in the unfair rejection rate ($X^2 = 1.98$; $p < .20$). Use of the "Original Scale" for the non-

TABLE 13

A Comparison of Error Rates Produced by Alternative Prediction Scales for Indian and Non-Indian Parolees

A Original Scale for Indians Only		B Indian Scale for Indians		C Original Scale for Non-Indians Only		D Non-Indian Scale for Non-Indians	
Nonvio.	Violaters	Nonvio.	Violaters	Nonvio.	Violaters	Nonvio.	Violaters
4 9	1	4 3	0	4 10	3	3 16	4
3 4	3	3 8	3	3 13	7	2 13	15
2 5	7	2 7	6	2 12	18	1 11	15
1 2	6	1 2	8	1 5	10	0 0	6
0 0	3	0 0	3	0 0	9	40	40
20	20	20	20	40	40		
Violation Rate = 10%		Violation Rate = 0%		Violation Rate = 23%		Violation Rate = 20%	
Unfair Rejection Rate = 28%		Unfair Rejection Rate = 43%		Unfair Rejection Rate = 36%		Unfair Rejection Rate = 30%	
Based on Items 1, 2, 3, and 5		Based on Items 1, 2, 3, and 4		Based on Items 1, 2, 3, and 5		Based on Items 2, 4, and 5	

Indian group results in a 3% disadvantage in the violation rate (X^2 = .04; p > .80) and a 6% disadvantage in the unfair rejection rate (X^2 = 1.00; p > .30). Table 14 presents expected unfair rejection and violation rates using combinations of the various scales. Reference to sections A and D of Table 14 reveals a 5% advantage in the unfair rejection rate for the scale combination presented in section D over the original scale results, (X^2 = .69; p < .50).

Discussion

The results indicate that any difference observed in violation or unfair rejection rates produced by alternative scales can again be attributed to sampling considerations. It is concluded that the continued use of the original scale developed in Part Two is justified, not on the basis of any significant advantages in predictive accuracy, but on the basis of efficiency. As stated previously, any comparison of cultural groups in this matter is obviously limited because no official statistics exist on the parole behavior of Indians under the existing case study system.

TABLE 14

A Comparison of Expected Violation and Unfair Rejection Rates Using Combinations of Alternative Scales

	A Original Scale Developed in Part Two, based on Items 1, 2, 3, and 5	B Original Scale for Non-Indians Items 1, 2, 3, and 5 + Indian Scale for Indians, Items 1, 2, 3, and 4	C Non-Indian Scale for Non-Indians, Items 2, 3, and 5 + Indian Scale for Indians, Items 1, 2, 3, and 4	D Non-Indian Scale for Non-Indians, Items 2, 3, and 5 + Original Scale for Indians, Items 1, 2, 3, and 5
Expected Minimum Violation Rate	17%	19%	17%	17%
and Unfair Rejection Rate Based on a Sample of 120 Parolees	34%	38%	34%	29%

PART SEVEN: TEMPORAL PATTERNS OF SCORES ON THE ENVIRONMENTAL DEPRIVATION SCALE FOR SUCCESSFUL AND UNSUCCESSFUL PAROLEES

Introduction

Two important limitations are associated with the prediction device developed in the previous sections. First, the device was applied at the time application for parole was made, that is, while the applicant for parole was still incarcerated. It provided only the probability of parole outcome after widely varying periods of parole supervision for each individual. It was not used to identify the probabilities of "impending" criminal activity. For the purposes of this study, the word, "impending" has no precise temporal definition. It simply refers to the probability of criminal activity during the parolee's release at certain intervals, rather than the probability of illegal behavior being predicted for the entire parole period, while the applicant is still incarcerated. Second, the items on which the prediction device is based cannot provide a thorough or systematic evaluation of an individual, for effectively intervening in, or preventing criminal behavior. For example, the device is based on four items related to the number of previous incarcerations, accomodation, employment, and age. Two of these

factors would be impossible to change (previous incarcerations and age) by the parole supervisor. The other two factors (accomodation with family members and employment) may also be very difficult or impossible to modify for effective prevention. Thus, it seems necessary to examine other areas of the parolee's life. Factors may be uncovered that are indicative of impending criminal activity and more amenable to modification. If such changes are possible further deviant behavior might be prevented despite the absence of favorable indications from the device already developed.

There is a clear lack of research involving direct attempts to develop an objective or systematic scale identifying impending criminal behavior and offering a basis for effective prevention by the parole supervisor. Jenkins and Sanford (1972) have developed a device labelled as the Environmental Deprivation Scale (E.D.S.). This device reportedly predicts recidivism with a high degree of success. Jenkins and Sanford also have claimed that the nature of the items are such that the device may serve as a guide for the intervention and prevention of criminal tendencies.

The E.D.S. is based on a form of behavioral theory. Unless certain forms of environmental support (i.e., rewards for lawful behavior) are assumed to be available to the individual, criminal deviancy can be expected. This approach represents a departure from a previous dependence on intra-

psychic explanations and certainly deserves investigation. While devices such as the E.D.S. may possibly offer advantages by avoiding abstract diagnostic categories or labels there are many limitations associated with the E.D.S.

The 16 items and scoring instructions for the E.D.S. are provided in Appendix I. Each item is assigned a score of either zero or one. The former integer is indicative of environmental support, the latter, of some form of deprivation. A total score of zero would thus indicate a very high degree of environmental support. A score of 16 would indicate maximal deprivation.

The original validation sample was composed of over 200 released offenders (not necessarily parolees). Original reports of validity and reliability were encouraging. Actual validity coefficients were not reported; however, 82% of successful releases scored low (from three to eight) and 81% of the unsuccessful group scored high (from nine to fourteen). By the repeated measures method a reliability coefficient of .84 was reported and .90 by the rater-rater method.

However, the features that limit the usefulness of the E.D.S. include that the device has not had the benefit of any crossvalidation studies. Second, by referring to Appendix I the subjectivity involved in scoring becomes obvious. Third, the point in time when the E.D.S. was scored and when recidivism occurred was not specified. A much more

exact temporal relationship is needed if it is to offer any advantage over existing prediction scales.

The objective of this study is to overcome the first and third of these major limitations. The concern is with providing a more exact description of variations in E.D.S. scores over time and their temporal relationship to criminal activity. If it can be demonstrated that a more immediate relationship does exist an effective intervention procedure might result, although without further investigation the E.D.S. cannot be assumed to serve as a guide to causal relationships.

To establish a functional relationship would obviously involve a much more detailed study involving the repeated and systematic manipulation of the environmental events as measured by the scale. What aspects of the released offender's environment to change would still involve a considerable degree of subjectivity if criminal recidivism is to be prevented. For the purposes of this study intervention would simply imply the establishment of greater contact with the parolee or suspending his parole, with the hope of being able to identify the crucial features of his environment which need changing (or to alter his score on the E.D.S.) before permitting parole to be continued with less extensive supervision. Because the E.D.S. appears to represent a much more thorough and systematic description of the criminal offender's environment during release than is generally available,

futher investigation involving the repeated and systemtic manipulation of these environmental features might prove to be of considerable benefit.

Procedure

NPS regulations require that monthly supervision reports be maintained on those individuals granted parole. These reports contained the information on which the 16 items of the E.D.S. were scored. Thirty successful and thirty unsuccessful parolees were randomly selected from the sample used in previous sections and their progress on the E.D.S. was followed until parole was terminated.

Results

Monthly E.D.S. scores for successful and unsuccessful releases are presented in Tables 15 and 16 respectively. These results indicate that approximately 66% of the successful group score between 3 and 8 while approximately 60% of the unsuccessful group scores between 9 and 14. Recidivists have significantly less environmental support than successful releases ($t = 3.7$; $p < .001$). However, it is immediately apparent that the monthly scores are generally stable in both groups. For the unsuccessful group there are no important relationships between fluctuations in scores and recidivism.

TABLE 15

Monthly E.D.S. Scores for Successful Parolees During the Parole Period

Parolees	Time (Months) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Average Score
1	5 5 3 4 5 5 5 5 4	4.7
2	11 10 10 11 11 11 11 11 10 9 9 9 9 9 9 9 9 9 9 9 9	9.7
3	10 10 10 10 10 10 9 9 8 8 9 9 8 9	9.2
4	13 13 13	13.0
5	7 7 7 5 6 7	6.5
6	4 4 4 4 4	4.0
7	4 4 4	4.0
8	7 7 7 7 7 7 7 7 7 7	7.0
9	8 7 6 6 6 6	6.2
10	6 6	6.0
11	4 4 4 5 5	4.4
12	8 7 8 8 8 8 8 7 7 7 7 7 8 8 8	7.6
13	8 8 8 7 9 9 9 9 9 9 8 8 8 8 8 10 9	8.5
14	12 12 12 12	12.0
15	4 5 6 6 7 6 6 7 7 7 6 7 7 6 7 7	6.3

Note: The absence of a monthly score indicates that a supervision report was not written for some reason or the report contained insufficient information to assign a proper score.

TABLE 15 (continued)

Parolees	Time (Months) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Average Score
16	4	4	4	5	4	5	4	5	5	5	5	6	6	6	6	6	6	6	6				5	6	5.2
17	13	11	8	7	5	11	10	11	11	11	11	10	12												10.1
18			5	6	6	4	6	6																	5.5
19	15	14	13	13	13	14	13	13																	13.5
20	7	10	10	10	11	11	11	11																	10.1
21	8	8		8	8	8	8	8	8	7	7	7	7	7	8										7.6
22	2	3	4	4	3																				3.0
23				4			4	4			7	7	7	7	7	6	7	6	7	7					6.2
24	4																								4.0
25		11	11	11	11	11	10	10	11	10	11	10	11	11	11	10	10	10							10.1
26	12	12	12	12	11	13	12	12	12	12															12.0
27	13	13																							13.0
28	6	6	6	6																					6.0
29	5	3	4	4																					4.0
30	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7							7.0

TABLE 16

Monthly E.D.S. Scores for Unsuccessful Parolees During the Parole Period

Parolees	Time (Months) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Average Score
1	13 12 13 12	12.5
2	8 8 8 8 8 7 7 7	7.6
3	9 8 8 9 8 7 8 8 8 8 8 8 8 8 8	8.1
4	9 9 10 11 9 9 9	9.4
5	6 6 6 5 6 6 6 6 6 6 6 7 7 7	6.1
6	10 10 10	10.0
7	9 9 9 9 9 9 9 9	9.0
8	8 9 10	9.6
9	8 7 8 8 9 10 11 8 8 10 11 12	9.2
10	9	9.0
11	10	10.0
12	14 14	14.0
13	9 8 8 8 7 8 8 10 12 13	9.0
14	11 12 12 12 12 12	11.8
15	13 13 13	13.0

TABLE 16 (continued)

Parolees	Time (Months) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Average Score
16	5 4 5 4 5 5	4.6
17	7 7 7 7 7 8 7 8 7 7 7 7	7.1
18	8 8 8 8	8.0
19	8 8	8.0
20	9 8 8	8.3
21	12 13 12 12	12.2
22	13 13	13.0
23	11 12 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11	11.0
24	8 8 8	8.0
25	6 6 6 6 7	6.2
26	12 12 12 12	12.0
27	7 7 7 7 7 7 7	7.0
28	10 8 9 8 11 10 8 9 10	8.1
29	8 9 10 11 12 13	10.5
30	10 10 10 10	10.0

Discussion

While a statistical analysis of E.D.S. scores could have been continued it seems clear from the raw data in Tables 15 and 16 little benefit would result. Unfortunately the unchanging nature of these scores obviously indicates that they cannot be employed as indices for impending criminality. The suggestions by Jenkins and Sanford that the E.D.S. might have potential as an effective basis for predicting and intervening in impending criminal behavior are not supported. However, overall differences in scores between the two groups do indicate a similar trend as observed by Jenkins and Sanford that successful releases have more environmental support (as measured by the E.D.S.) than unsuccessful ones.

It is obviously possible to suggest that environmental features ignored or somehow obscurred by the E.D.S. may bear a more exact or immediate temporal relationship to recidivism. However, the E.D.S. does provide an extensive survey of the individual's environment and perhaps it is possible that concepts ignored in this scale other than environmental support may meet these requirements. One of these other areas may include activities labelled as attitudes or responses. It is also possible to suggest that signs of impending criminal activity do not exist and that an individual may become involved in this form of behavior at any time given the opportunity. The results presented in this

section may tend to support this suggestion.

While this study revealed the E.D.S. to be of limited value for predicting and thus intervening in impending criminal behavior, and also, that the level of discrimination between successful and unsuccessful releases was not as high as originally reported, some differences in scoring procedures should be emphasized. Unlike the Jenkins and Sanford study, present E.D.S. scores were based, in a sense, on secondhand information. Direct observation or interviewing techniques were not possible. Differences in the size and nature of the samples used obviously may also be involved in an explanation of the results observed here.

GENERAL DISCUSSION

Explanations of the rationale for, and some problems associated with, the previous sections have already been provided. An attempt is made here to discuss the findings and problems in a more general way and to provide suggestions for further research.

Most importantly, the results indicate that a simple actuarial device based on four prediction items can at least match the parole violation rate of an involved case study system. The greatest potential advantage is efficiency. Prediction using the case study system often requires many hours of preparation compared to only a few minutes using the statistical device.

Little contribution has been made to the "understanding" of criminal behavior in the sense of fitting the data to some clearly defined theory. As stated, the concern was with developing an objective and efficient prediction device, and the methods used prevented assumptions about causal relationships.

The criterion predicted was complex. Since the regulations or standards of the correctional officials involved in judging parole behavior can easily vary, parole

outcome does not represent a clear cut dichotomy. Rather than specifically predicting the criminal behavior of parolees, the prediction of the behavior of correctional officials may have been frequently involved. In some cases "successful parolees" may have been those individuals who successfully managed to avoid apprehension rather than those who ceased involvement in criminal activity.

Widely varying lengths of parole periods may represent another problem. The length of parole supervision under NPS regulations is determined by the length of the sentence originally received and the period of time incarcerated before parole is granted. These procedures require that predictions of criminal behavior be made for arbitrary points in time. With every individual being observed for a more uniform and lengthly period of time, it is possible more accurate predictions of eventual recidivism might be made.

The comparisons of potential predictive accuracy were incomplete. Only the rate of potential parole violation was compared under the two methods of prediction. To obtain an accurate estimate of the unfair rejection rate under case study procedures, predictions would have to be made in the usual manner and applicants would be released regardless of these predictions. Potential problems associated with that kind of research have been mentioned. Secondly, official statistics on the parole behavior of Indians as a separate group were unavailable. Only the potential perform-

ance of this important cultural group on the scales developed could be observed.

Considerable information was lost by the manner the prediction items were selected. The emphasis was on efficiency and objectivity and it is obviously possible that more elaborate items might have resulted in predictive advantages.

A related problem is associated with the areas of the applicant's life to which the items refer. The actuarial device may not be sensitive enough to ongoing changes in other areas of the environment or response patterns that have the potential to effect recidivism. For example, the item dealing with the number of past incarcerations is unchangeable and will always effect the applicant's total score despite beneficial changes in other areas. The item dealing with age works in a similar way. The remaining two items dealing with accomodation and employment may also be a disadvantage to the applicant who is undergoing beneficial changes in other areas of his life, since these two items may be very difficult to change for the applicant while he is still incarcerated.

Despite these limitations and others the potential advantages listed earlier of the comparisons attempted still apply. Direct comparisons of potential error rates were made rather than the more usual procedure of only considering the validities of individual items. A comprehensive comparison with a large number of case study judges was possible. The

items are completely objective and a high degree of reliability is expected. Some attempt was made to deal with important local cultural groups. The emphasis on a brief, nonpsychometric, nonweighted scale provides important advantages in efficiency. An attempt was made to crossvalidate the E.D.S. Although the results were disappointing for the specific purposes described, they are to a degree in accord with the results of the scale developed here. Both suggest the obvious or "commonsense" view that criminal recidivism is in someway associated with less environmental support.

Suggestions for Further Research

(1) Periodic crossvalidation checks for this type of device developed are obviously essential. In the present study the scale was validated on the inactive files of originally successful applicants for parole. The obvious next crucial step should involve an attempt to validate the scale on an actual follow-up basis. The ideal method would be to release all applicants for parole make predictions according to both methods and observe the progress of parolees until the parole period is terminated. As stated, considerable public opposition might be expected to develop, since many may regard such procedures as an added threat to public safety.

(2) Very few direct comparisons of actuarial and existing methods of prediction have apparently been attempted.

Such comparisons provide more complete and definite information than the reporting of individual item validities as is frequently done. Considerable benefit might be received by attempting direct comparisons of accuracy using items developed in previous extensive studies.

(3) No doubt more effective relationships will be found between other types of items and recidivism if further searches are conducted. Not only all areas of the potential recidivist's life should be examined but the exact definition of the items deserve careful consideration. For example, present results are based on very brief dichotomized items; alternative definitions might have been more effective.

(4) Only the rate of violation could be compared. Methods are necessary that will permit a complete comparison. Some problems that may be associated with releasing all applicants regardless of case study predictions have already been discussed. A possible alternative, but less accurate method of determining the unfair rejection rate using case study procedures would be to examine the files of all applicants originally denied parole by the NPS. By scoring these rejections on the scale developed some estimation of the unfair rejection rate could be obtained.

(5) Special studies of cultural groups associated with high crime rates are necessary. Again, present comparisons are limited because no official statistics on the parole behavior of Indians as compared to other groups were available.

(6) Criterion measures involved widely varying time periods. Generally they represent relatively brief periods in a potential criminal's life span. The prediction of eventual recidivism involving more uniform and lengthly periods might be beneficial.

(7) Complex relationships may exist between increased efficiency, resulting increased parole supervision, and changes in expectancy table frequencies. For example, increased supervision may be effective in reducing the total violation rate for a certain score category, perhaps making it possible to lower the cutting score.

(8) A related question might be if the size of the total score can offer any basis for the degree of supervision required. At this stage the results obviously do not permit assuming that any causal type of relationships exists.

(9) More sophisticated studies are needed for comparisons of savings in time and money.

(10) The fact that actuarial tables cannot set the standards for cutting scores has already been discussed. Again, more elaborate studies evaluating the impact of releasing only those applicants with a high probability of success are needed. For example, it may be more expensive for the public to keep applicants in a certain score category incarcerated.

(11) Very little research if any has been conducted attempting to evaluate the probable responses of society, or

of the applicants involved, to actuarial devices. Although advantages in efficiency or accuracy might be associated with actuarial prediction, many might regard the reduction of individual personalities to a set of numbers with considerable antagonism.

(12) The qualifications of, and information available to case study judges may also deserve further consideration. The separation of judges into groups according to qualifications or the type of information that they have available, might reveal important trends.

(13) Another area that may be worth examining is the usefulness of the prediction items selected for other forms of social deviancy. For example, would those individuals institutionalized in mental hospitals follow the same trends in recidivism depending on the availability of accomodation with family members, employment, age level, or the number of times previously institutionalized?

(14) Some might argue that a combined form of case study and actuarial methods might offer some advantages. Obviously further empirical comparisons of success rates could be essential.

(15) As already discussed, an actuarial device should ideally be sensitive to any ongoing changes in the individual's life related to recidivism. Items that refer only to the past may overshadow any future beneficial events.

(16) Perhaps the ultimate goal should be the development of an accurate, systematic, and objective device capable of both predicting impending criminality and offering a basis for intervention before further deviancy occurs. Some attempt was made to examine the usefulness of a scale in Part Seven that might have the potential for such tasks. The results indicated that these specific objectives were not achieved.

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APPENDIX I

SPECIFICS OF THE EDS: SCORING THE ITEMS

(source: Jenkins and Sanford 1972)

The information necessary to score each of the items on the EDS is obtained in the interview. Consistent and accurate data collection for scoring is not a simple matter and requires considerable skill on the part of the interviewer. Questioning and data collection continue in each area until the interviewer is able to decide how to score that item. It may sometimes seem as though a particular point is being belabored, but it is much better to have more information than needed than to have so little that the item cannot be scored validly.

Each item is scored "zero" (0) or "one" (1). A score of "0" indicates that the client is receiving environmental support for socially acceptable behavior, taking into consideration the level of expectation for his particular status and subculture. The question here is really whether or not the client's behavior reflects "satisfaction with his current lot." Does his life "measure up to his expectations"? His expectations, of course, are tempered by his subculture; a mill hand would not expect the same type of residence that the president of a large corporation considers imperative. The interviewer should be familiar with the client's subculture. Other factors must also be considered. One would not, for example, expect the same sexual behavior from a 60-year-old wife as from a 20-year-old wife. These considerations enter into item scoring.

The interviewer must use critical judgment in scoring to decide if the support the client is receiving is for socially acceptable, or adaptive behavior. The client may, for example, describe a supportive relationship with his parents. He sees them frequently and helps operate the family business. But if the family business happens to be running the friendly neighborhood numbers racket, the support he receives from them is for maladaptive behavior and should be scored "1". Another consideration is that supportive behavior can be overdone. If a mother's relationship with her son is of such a nature that she restrains and restricts him, robbing him of his freedom, this then becomes deprivation and should be scored "1". The interviewer must obtain enough information to allow him to make the necessary scoring judgment.

Some items, like *education* and *income*, require precise factual data to be scored. These are relatively simple. The scoring of other items, such as *wife*, depends more heavily on the interviewer's skill in obtaining a report of the wife's behavior which indicates support or deprivation. If the environmental source represented by the item does not support

the client's adaptive behavior the item is scored "1". In cases of doubt the interviewer should rate the item "1", because the reason that the information necessary for scoring was not disclosed is probably that deprivation and deviant behavior are involved.

The guidelines for item scoring listed below were established for dealing with released offenders. For populations essentially like this population, these guidelines will hold for scoring. To use the EDS with different target populations, different expectancies would have to be considered and the guidelines for scoring revised. Examples of scoring from actual interviews, shown on the EDS interview scoring form, follow each item.

Face Sheet

The face sheet which accompanies the EDS interview form provides a good starting place for the interview. The first questions (age, occupation, etc.) are fairly routine and simple. Likewise, it is not too difficult to determine the client's status and, if he is released or paroled, to ask the date of his release. The last three items on the face sheet are best answered after the interview is completed.

Item 1. *Employment*

This item is relatively easy to introduce and is quite straightforward. It allows for direct questioning, and the information obtained is simple to score. The interviewer asks about the kind of work the client is now doing or last did. Did he work yesterday? What does he do on the job? How many hours/days a week does he usually work? Does he ever work overtime? The work history for a specified time period (the past month, three months, etc.) is obtained. If the client is in prison or in a hospital, his work history prior to his arrival there is obtained. The cut-off for this item is half-time work, that is, 20 or more hours per week, or six months in a year. If the client works more than half time or did so before coming into the prison or hospital, he receives a "0" for this item. If he works less than half-time or has no job, he is scored "1". If the client has no single steady job but works more than 20 hours per week on several part-time jobs, he is scored "0".

0 1. EMPLOYMENT. Give a rating of deprived (1) if the client is unemployed less than half time (less than 20 hours a week).

40 hrs./wk. as apprentice welder at Jones Boiler Works.

Item 2. *Income*

This item follows easily from the previous one. The client may have a tendency to exaggerate his yearly income, but will generally be more accurate when reporting his hourly, weekly, or monthly earnings. Sometimes it is helpful to ask about the total income

on which taxes were paid. A score of "0" is given if the client earns at least minimum wage working 40 hours a week–which at this time is approximately $70 a week, or about $3,500 a year. If he earns less than this amount, he is scored "1". It should be noted that this figure represents what *he earned*–not what his wife earns, his parents give him, or any pensions he may receive. Room and board should be included as income if these are furnished as part of his job, rather than furnished by his parents, in-laws, or other relatives.

0 2. INCOME. Give a rating of deprived (1) if the client's weekly income (not his wife's or other sources) is less than $70, or if his annual income is less than approximately $3,500.

$84 a week, or $2.10/hr.

Item 3. *Debts*

Here it is best to avoid direct questioning. The client is asked about car, house, appliance payments, dental and medical bills, charge accounts, and such. The object here is to obtain a picture of the client's financial obligations and a description of his behavior in meeting these obligations. How many payments are left on his car? Has he missed any payments? Is he ever late with the rent or mortgage payments? A rating of "1" should be given if he describes a number of debts which he is unable to pay. However, if he is promptly and consistently meeting his payments without overly straining his income and is optimistic about getting out of debt, he should be scored "0". Of course, if he is exhibiting maladaptive behavior (theft, forgery, etc.) to meet his debts, he is scored "1".

0 3. DEBTS. Give a rating of deprived (1) if the client frequently complains about a number of debts he is unable to meet. Also score deprived (1) if he has debts he is financially unable to pay, even though he may not recognize this as being a problem.

Owes $100 on car. No problem with $20/wk.

payment.

Item 4. *Job Participation*

This item is relatively more difficult to score than the previous items because the interviewer must judge the degree of the client's job involvement. A man may work five days a week at his job but show little interest in his work and do as little as possible to "get by." Direct questioning here is likely to produce opinions rather than behavioral description. Instead the interviewer should ask the client about his actual activities on the job. What does he do on the job? What parts of the job does he like? Dislike? Why?

Does he ever get behind? Does he leave work unfinished or sloppily done because there "wasn't enough time"? How much time does he spend on breaks? Lack of interest in a job seems to result in minimal job participation. It is not necessary that the client work overtime to be scored "0", but rather that he put forth his best effort while working. Job effort, motivation, and interest are the primary considerations in scoring this item: Is the client working hard ("0") or hardly working ("1")?

_1_ 4. JOB PARTICIPATION. Give a rating of deprived (1) if the client shows little interest in his job other than as a means of earning a living, or if he demonstrates no concern with work "above and beyond the call of duty." If the client is completely unemployed, also give a rating of deprived (1).

Says he sleeps on the job sometimes; calls in sick once a week.

Item 5. *Job Status*

This item is related to the previous item, and it is likewise somewhat difficult to score. Basically it involves the amount of pride the client takes in his job and the degree to which he considers himself to be important to the organization. It is difficult to obtain behavioral description in this area, so the rating must be done from the client's verbal description of his work status. If he shows pride in his work and indicates that he considers himself valuable to the organization and capable on the job, he is scored "0". It is helpful here to ask if the client is satisfied with his job or if he is looking for another. How long has he held this job? Can he expect promotions? The level of the job is not important if the client reports job satisfaction. A key question is whether or not he plans to continue in this work as his career. If the client tends to downgrade himself on the job, describes the work as dull and uninteresting, and considers himself "just a cog in the wheel" or a "number in the computer," he is scored "1". It should be noted that sometimes a man can be working very hard at his job, showing a great deal of job participation, but may report little pride in his work. An example of this would be a farmer who puts in extra hours and works hard to make money but says he dislikes farming and hates to be considered "just a dumb red-neck." He would be scored "1" for this item. If the man reports pride and satisfaction in his job, regardless of the level of this job, he is scored "0". The interviewer must be careful to obtain enough information to score items 4 and 5 accurately.

_1_ 5. JOB STATUS. Give a rating of deprived (1) if the client describes his position as lowly in relation to his fellow workers and/or says he is unnecessary on his job. Do not confuse this item with "Job Particiation." If the client is completely unemployed, also give a rating of deprived (1).

Looking for another job; argues with boss.

Item 6. *Hobbies and Avocations*

This item deals with hobbies and non-occupational leisure activities in which the client participates and is proud of his participation, indicating that he is receiving support from these activities. The interviewer can begin by asking what the client does in the evenings and on weekends. Does he have any hobbies? How much time does he spend in these activities? A man may report that he loves fishing, but if he hasn't fished in two or three years, this can hardly be considered a very important hobby for him. The particular activity–softball, stamp collecting, auto repair, or whatever–is not important; the point is whether he describes himself as something of an expert in his speciality and thus takes pride in it. If he reports no activities, he is scored "1". If he has a hobby or activity in which he participates frequently and takes pride, he is scored "0".

0 6. HOBBIES AND AVOCATIONS. Give a rating of deprived (1) if the client does not engage in and expresses no pride in any systematic leisure-time activities, hobbies, and avocations (anything from sand-lot softball to stamp collecting) outside of church, job, and organizations.

Plays guitar with band on weekends.

Item 7. *Education*

This item is relatively simple to score. The cut-off point for this particular population is the 10th grade. If the client has completed the 10th grade at the time of the interview, he is scored "0". If he has completed less than the 10th grade, he is scored "1". If he quit school before completing the 10th grade but received schooling in the service, in a correctional institution, or elsewhere so that he had earned his GED, he is scored "0". The scoring of this item is based on his formal education at the time of the interview, regardless of when this education was obtained. Sometimes the interviewer may need to cue the client's memory by asking what school he went to, where, and whether or not he finished there.

1 7. EDUCATION. Give a rating of deprived (1) if the client has less than a 10th-grade education.

Completed 8th grade.

Item 8. *Residence*

Here the interviewer must obtain behavioral reports from the client which indicate satisfaction and pride in his residence and the neighborhood. He can begin by asking where the client lives, whether he owns or rents, and what the apartment, house, or trailer is

like. How is it furnished? How does it compare to the other homes in the area? The client's pride in his residence can also be measured in terms of his participation. Does he have a garden, mow the lawn, or paint the house? How much time does he spend taking care of it? Another key question is whether or not he wants to move. A man may have a nice home but want to move because he dislikes the neighborhood. If the client indicates satisfaction and pride in his residence, both verbally and in his activities regarding it, then he is scored "0". Likewise, a client would be scored "0" who lives with his parents but helps around the house and doesn't want to move.

0 8. RESIDENCE. Give a rating of deprived (1) if the client has no pride in his house, yard, or neighborhood, if he feels he is living "on the wrong side of the tracks" relative to his peers, as indicated by his care of the house and yard, interior decorating, etc.

Likes neighborhood, works in yard, plans to paint house.

Item 9. *Church*

The interviewer asks the client if he attends church and, if so, how often. When did he last attend? Prayer meetings, revivals, Sunday school, and regular services are all included. The client is asked to report his attendance for the past 12 months. If he attends at least once a month, he is scored "1".

1 9. CHURCH. Give a rating of deprived (1) if the client *attends* church, Sunday school, or other religious activities less than once a month.

Never attends.

Item 10. *Other Organizations*

Here the interviewer must estimate the extent to which the client is obtaining satisfaction from belonging to organizations, clubs, sporting groups, or other organized groups. The client should be actively involved in the group, not merely passively paying dues. Does the client express a sense of "belongingness"? The interviewer asks if the client is a member of any clubs. When did he last attend a meeting? What did he do at the meeting? When was the time before that? Does he hold an office in the organization? How long has he been a member? The interviewer must consider the client's status when scoring this item. A man who lives in the boondocks has less opportunity to belong to and participate in clubs than a man in the suburbs or the city, so may attend club activities less frequently. The effort he makes to participate (driving long distances, etc.) is important

in scoring this item. A score of "1" is given if the client does not belong to any organizations or if he belongs but does not actively participate in club activities.

1 10. OTHER ORGANIZATIONS. Give a rating of deprived (1) if the client does not belong to any clubs, church groups, or other organizations and does not *participate* in organizational activities.

Joined AA but does not participate.

Item 11. *Friends*

If asked about friends, the client will probably reply that he has "many friends." The client should instead be asked about his closest friend, when he saw him last, and what they did together. Some interviewers ask if this friend would post bond for him if he were in trouble, which would behaviorally indicate trust and concern. The questioning continues until a behavioral picture of the friend emerges. Then the next closest friend is asked about. How often does he see this person and what do they do together? The interviewer must collect enough information to determine whether or not the client has one or more friends who take an interest in him and with whom he can discuss important matters. The client is scored "1" if he has no friends, says that no one is concerned about him, and reports that there is no one with whom he can really talk. A score of "0" is given if the client has a supportive relationship with one or more friends. If the client has a female friend who is his wife or steady girl friend, she is scored on the "wife" item, not here. Another female friend, such as his brother's wife or next-door neighbor, can be scored for this item. However, one thing needs to be noted in dealing with released offenders. If the client reports supportive relationships with one or more friends who encourage socially unacceptable behavior (like bar-room brawls and filling station stick-ups, for example), he is scored "1" on this item, regardless of how "close" these friends may be. This holds true for all items involving interpersonal relationships. A "0" is given for support of socially acceptable behaviors.

1 11. FRIENDS. Give a rating of deprived (1) if the client is essentially an isolate, if he has no friends outside his family, if he has no one outside his family whom he describes as being concerned about him, etc.

One close friend who is non-supportive, encourages drug use.

Item 12. *Relatives*

This item deals with the behavioral support the client receives from relatives outside his immediate family. Parents and children are excluded in this item. The interviewer

focuses on the client's relationship with his brothers, sisters, in-laws, and aunts and uncles. To score this item, the interviewer must obtain behavioral reports of a supportive relationship between the client and a relative who is concerned about him and would help him if he were in trouble. Questions can begin by asking about brothers and sisters. Where do they live? When did he last see them and what did they do together? What happens on birthdays and at Christmas? Even if the relative lives some distance from the client, letters, phone calls, and vacation visits can indicate a good relationship. If the client expresses negative feelings toward all relatives, has no supportive relationship with any of them, and reports only infrequent contact with them, he is scored "1" on this item. If he has a close relationship with one or more of his relatives, and has little or no contact with those with whom he has a negative relationship, a score of "0" is given.

/ 12. RELATIVES. Give a rating of deprived (1) if the client expresses a strong negative relationship with his relatives, other than his immediate family, and has no strong positive relationship as shown by behavior.

Last time saw only brother was in 1969; had argument; no contact with other relatives.

Item 13. *Parents*

Here as elsewhere, it is important to gather behavioral information rather than description of emotions and feelings in this area. "Loving" one's mother is not the point, but rather what behavioral interactions take place, how frequently, etc. As with other items concerning interpersonal relationships, the interviewer should not use direct questioning here. He should ask where the parents live, when the client last saw them, and how he and his parents behaved toward one another. The interviewer asks about displays of affection: Do the client and his parents kiss and hug when greeting each other? Once again, the status of the client must be considered. If his parents live quite a distance away, the client should be asked about frequency of letter writing and telephone calls. Are gifts exchanged? Does he receive birthday cards from his parents? Giving money and presents are a form of support, but the client must also spend time interacting with his parents–talking, playing cards, going to church and movies, etc. The interviewer must judge the amount of behavioral support the client receives from his parents. Does he talk to them about important matters? Are they concerned about him? Of course, this behavior can be overdone. If a client's mother calls him every day, constantly gives him advice, visits him several times a week, and expects the same amount of attention from him to the point where he says he is smothered and resents the relationship, her behavior has ceased to be supportive, becoming a form of deprivation, and should be scored "1". A score of "0" is given if the client reports a supportive relationship in which at least one parent shows him behavioral concern, attention, and affection, and he has little or no contact with the parent with whom he has a non-supportive relationship, or if the other parent is dead. If the client resents or dislikes the parent with whom he has the most contact (as indicated by frequent arguments and disagreements), or if a supportive relationship exists with neither parent, the item is scored "1". If both parents are dead, a score of "1" is automatically given. Foster parents can be scored as the parents for this item.

/ 13. PARENTS. Give a rating of deprived (1) if the client's relationship with mother and/or father (or parental surrogates) is such as to indicate a lack of affection or concern on his or her part. Give a rating of deprived (1) if both parents are dead, regardless of the "love" involved. Give a rating of deprived (1) if one parent is dead or absent from the home and the client describes a negative relationship with the parent whom he sees most often.

Giving him money; supporting his not working and not looking for a job.

Item 14. *Wife*

To score this item, the interviewer must get enough description of behavior to decide whether or not the client has a behaviorally satisfying relationship with his wife. It is not enough that they merely live together; a man and woman may live together peacefully for years but have a non-supportive relationship. Questions are asked about the wife's daily activities in relation to the client. What does she do while he is getting ready for work? What does she do when he comes home? Does she fix his favorite foods? Watch TV with him? Is she physically affectionate? What are the sleeping arrangements?

Usually at this point in the interview the client will not mind answering questions about his sexual behavior, so the interviewer asks how often he has sexual intercourse, who initiates the sex behavior, and if both are satisfied. Sexual behavior in itself is only one form of behavioral support. For the relationship to really be thoroughly supportive, the other forms of behavioral support should also be present in the client's description of the wife's daily activities.

The interviewer should ask about arguments and separations as well. How frequently do they argue? About what? Have they ever been separated? For how long? When was the last time? Do they fight physically?

A score of "0" is given if the wife is reported to behave in a way that indicates concern and affection for the client. The item is scored "1" if the wife is reported to behave in such a manner as to imply general disinterest, non-support, and lack of affection for the client. If he is adult, unmarried, divorced or separated, a score of "1" is given. An unmarried man may, however, be scored "0" if he reports a satisfying relationship with a steady girl friend. "Chasing" other women, whether the client is married or not, is indicative of a non-supportive relationship and should be scored "1".

The "wife" item is often particularly hard to score for released offenders because of the frequency of "shack jobs" and similar common-law arrangements. In such situations, it must be remembered that sexual activity does not necessarily mean that a supportive behavioral relationship exists. But if the client indicates that a long-range relationship is a possibility and that marriage is being discussed, he may be scored "0".

0 14. WIFE OR EQUIVALENT. Give a rating of deprived (1) if the wife's behavior indicates a general disinterest and lack of affection for the client. Give a rating of deprived (1) if the client is adult, unmarried, divorced or separated, and gives no evidence of a supportive relationship with a peer female. (Note: Specific behaviors, such as preparing his meals, talking with client about his problems, displaying physical affection, such as kissing, engaging in sexual relations at least once weekly, are key behaviors for rating this item.)

Dates one girl two or three times a week; planning marriage; sex twice a week.

Item 15. *Children*

The interviewer does not ask if the client loves his children, because everybody "loves" his children. Instead he should ask about behavior, his toward the children and theirs toward him. Are they affectionate toward him? How much time does he spend with them and what do they do together? Does he buy gifts for them? The interviewer must obtain reports of the amount of support provided by the client's children. Children displaying frequent affectionate behavior toward their father are usually supportive, and a score of "0" is given. A score of "1" is given if the client reports infrequent affection from his children or that he spends little time with them. The children in question must be the client's or be legally adopted by him. His sister's children, girl friend's children, and such do not count in scoring this item.

1 15. CHILDREN. Give a rating of deprived (1) if the client reports that his children show little behavioral interest in him, such as rare displays of physical affection, little time spent with him, etc. If he has no children (either his or legally adopted by him), also score the item deprived (1).

Lets his mother raise his child; contributes no support; visits child rarely.

Item 16. *Fear*

This item is sometimes difficult to get through specific questions, but most of the information necessary for scoring will already have been obtained in scoring the other 15 items. Basically, the question of "fear" deals with the client's plans for the future and his self-estimate of his ability to handle current and future problems. Does the client seem anxious and apprehensive about meeting the demands of everyday living--about

"making it"? Does he have realistic problem-solving plans for the future? Is he excessively concerned about his job future?

The interviewer will have picked up some cues. The client may have said, for example, that he was worried that he might be laid off soon and didn't know where he could find another job. Or he may have told the interviewer that he was afraid the finance company would take his car. If the interviewer needs more information he can ask directly about the client's plans for the future.

Released offenders will often say they have no fears about their ability to cope with free-world life, even when their behavior indicates considerable apprehension and worry. The interviewer should ask the client if he has been picked up by the police or if he thinks they are watching him and waiting for him to "mess up." Does he worry about being sent back to prison? Does he think people discriminate against him because he has a record? Does he worry about losing his job?

If the client expresses realistic confidence in himself and his ability to cope with his problems, he is scored "0". He is scored "1" if he expresses doubts, fears, apprehension, and anxiety, and seems overly concerned about himself and his ability to deal with his environment.

1 16. FEAR. Give a rating of deprived (1) if the client expresses anxiety about his job, about parole violations, or apprehension about himself and his ability to meet the demands of his environment and to cope with everyday problems.

Concerned about disagreements with parole officer.