CHAPTER III

RESEARCH METHODOLOGY

The purpose of this chapter is to identify the manner in which the research effort was undertaken, the method by which the data were gathered, assembled, and processed, the sampling technique utilized for data gathering, the procedures and equipment utilized to perform the analysis, the variables identified as influencial in determining group characteristics and possible association, the statistical procedures used, and the results of the previously conducted pilot study.

Research Design

The basic research design incorporated within this study involved a two-fold approach. The first segment was that of a descriptive design which was constructed in a manner that allowed for direct comparison between the two sample groups, escapees and non-escapees, of those independent variables believed to be of significant influence and subsequent consideration. The second segment was that of a predictive model which, utilizing the gathered data, attempted to identify certain group characteristics that were common among both samples, and from this comparison, provide a contrastive analysis of those characteristics

possessed by one sample that differ from the other sample group. Consequently, the data from this sampling effort would be used within a discriminant analysis predictive model geared toward forecasting future escape potential based on previous historical experiences and relative data.

The Samples

For purposes of this study, samples were drawn from existing prisoner files of the Los Angeles County Sheriff's Department that identified specific characteristics and demography relative to the inmates' height, weight, age, marital status, education, employment, parole and probation status, local residency, prior escape history, previous arrests, previous time spent within a correctional setting, pending court requirements, active hold restrictions, and ethnicity. The samples were drawn according to relation to the topic under analysis (i.e., escape or non-escape from correctional custody) and were selected in such a manner that both samples were inclusive of minimum security prisoners who either escaped from confinement or who completed their sentences during the same time period. Those prisoners who were selected for this analysis were incarcerated within either the Wayside Honor Rancho or Biscailuz Center between January 1980 and December 1982.

Sampling Procedure

To successfully extract the required data elements for this study, a multi-stage, stratified random sampling procedure was utilized. This sampling technique is defined as a "probability sample" and, as such, is designed to select relative cases from two specified stratum that do not differ by more than a certain amount from the true population values. Further, the sample sizes (200 per population) were determined to guarantee that enough cases were selected from each relevant population stratum to provide an estimate for that population. As with any multi-stage, stratified random sampling, the overall population of prisoners within the Los Angeles County correctional system was divided into two distinct segments--those who were confined within maximum security facilities and those who were confined within minimum security institutions. Since this study was designed to examine the escape propensity for inmates housed within minimum security settings, the populations of the Wayside Honor Rancho (minimum security facility) and Biscailuz Center were used. From this point, the populations were stratified into two specific categories--those who had escaped during their incarcerative period and those who had remained within confinement. Of these strata, a large sample of 200 prisoners was selected from the escapee population, and a large sample of 200 prisoners was

selected from the non-escapee population by extracting every other case. These samples were then numerically delineated by group association (1 for escapees and 2 for non-escapees) and combined into one sample for purposes of analysis.

The sample information collected is seen to allow for an exhaustive comparative analysis between the prisoner sub-groups in question and was designed to provide the needed representation for analysis for both the descriptive comparison and for the inferential/discriminant analytic effort.

Data Gathering Procedure

During the actual acquisition of data phase of the research effort, files pertaining to the populations under analysis (escapees and non-escapees) were collected from existing manual files from the Sheriff's Department Custody Division, Classification and Assignment Section, and from the Detective Division, Fugitive Detail. These information files identified each prisoner and contained data elements directly relative to the study. Because of procedural restrictions imposed by the Sheriff's Department, the names and identifying booking numbers of these prisoners could not be included within the text of this report for validation purposes or exact replication.

The data from these files (i.e., height, weight, age, marital status, education, employment, parole status, probation status, local residency, prior escape history, previous arrests, previous time spent within custody, pending court requirements, active hold restrictions, and ethnicity) were transferred from each prisoner file onto computer encoding sheets. Once collected, the data were encoded into disk storage on the VAX 1175 maintained by the Claremont Graduate School, Computer Services Section. These data were then processed via an SPSS Discriminant Analysis program. The basic design of this computer program is to allow for a statistical analysis between two or more groups of cases. The groups in this case were those described as escapees and non-escapees.

The Variables

As was previously described, the variables included in this study are those of a descriptive and inferential nature. The variables used toward establishing a strictly descriptive profile of general characteristics of the prisoner populations under study were the height, weight, age, ethnicity, marital status, education, employment status at time of arrest, parole/probation status at time of arrest, and the local residency of the incarceree. Of

these variables, the age, height, weight, and education were represented by interval scaling. The remaining categories--employment status, parole status, probation status, local residency, ethnicity, and marital status--were represented by nominal scaling.

With respect to the interval data elements, the data was captured in the following manner: age (in years), height (in inches), weight (in pounds), and education (in years of formal education). The nominal data elements were quantified as follows: employment status at time of arrest (employed=1, not employed=0), parole status at time of arrest (on parole=1, not on parole=0), probation status at time of arrest (on probation=1, not on probation=0), local residency (local resident=1, not local resident=0), ethnicity (by the number of participants in the White, Black, and Hispanic categories), and marital status (by the number of participants in the married or unmarried category).

Concerning the remaining data elements utilized within this examination (prior escape attempts, previous confinement time served, pending court appearances, and active holds against the inmate), all were represented by interval scaling. More specifically, prior escape attempts were represented by the number of previous escape attempts from any correctional institution, previous confinement time served was determined and represented by the

number of days spent by the prisoner within any confinement facility, pending court appearances was portrayed by the number of pending appearances prior to the prisoner's release from Sheriff's custody, and active holds was portrayed by the number of holds placed against the inmate by other jurisdictions or law enforcement/criminal justice agencies.

As applied to the inferential analytic efforts of this study, the act of escape by study group number 1 is considered as the dependent variable. The independent or predictor variables thusly become height, weight, age, marital status, education, employment status, parole status, probation status, local residency, prior escape history, previous arrests, previous time spent within confinement, pending court requirements, active holds, and ethnicity.

Discriminant Analysis

Discriminant analysis is a collective statistical application which allows for the comparison of two or more groups of objects with respect to several inferential variables. The term "discriminant analysis" refers to several closely related statistical functions that, when combined, can illustrate the basic group differences and can classify cases into group associations.[1] The first section of the discriminant analysis program is designed to allow the researcher to examine those variables which

delineate the manners in which groups differ. That is, they allow one to discriminate between the groups based on a set of predescribed characteristics. Additionally, the computations are illustrative of how well the variables discriminate and which of those characteristics identified or examined as part of the study are the most powerful discriminators.

The second segment of the discriminant analysis program is designed to derive one or more mathematical equations for the purpose of classification. These equations are called "discriminant functions" and combine the group characteristics in a way that will allow one to identify the group which a case most closely resembles.[2]

The characteristics used to distinguish among groups are referred to as "discriminating variables." So that arithmetic means and variances can be calculated, they are normally measured at the interval or ratio level. This allows for the legitimate inclusion of these variables within the predefined mathematical equations. Generally speaking, there is no limit to the number of discriminating variables that can be used in the analysis. However, the number of cases examined must exceed the number of variables by at least two.

The specified limits on the statistical properties which are used as discriminating variables are defined as follows: No variable may be a linear combination of other

discriminating variables (that is, the sum of one or more of the variables which may have been weighted by constant terms), the population covariance matrices must be equal for each group, and the population under analysis must have been extracted from an overall population which has a normal multivariate distribution pattern.[3]

As previously mentioned, "discriminant analysis" is used to study the differences between two or more groups and a set of discriminating variables. By considering the groups to be defined as a single nominal level variable (with each value denoting a different group), it can be seen that discriminant analysis as a technique relates one nominal level variable to several interval level variables.

As applied to the current research study, since the groups, escapees and non-escapees, are defined as dependent upon the discriminating variables, then the situation is basically analogous to the technique of multiple regression. The primary difference between these two processes is that, in this case, the discriminant analysis method treats the dependent variable as being measured at the nominal level. Hence, the assignment of a group identification number of 1 for escapees and 2 for non-escapees.

The Statistics

As part of the Statistical Package for the Social Sciences program, the discriminant analysis program

provides various output data relative to the groups themselves and the degree of dependency to the inferential variables used to predict group association. In the chapter to follow, many of these output data and statistics will be presented so as to provide an empirical analysis of the theories set forth in chapter 1. Concerning the univariate analysis of these data, the frequencies of those groups are portrayed within the specific variable categories along with the relative chi-square. Where interval data were used, the means and standard deviations are provided along with the calculated t ratio and significance profile. Within the discriminant analysis section, statistics such as the within-groups covariance, the within-groups correlation coefficient, Wilks' Lambda, F ratio, canonical correlation coefficients, discriminant function coefficients, and Eigenvalue are presented.

The Pilot Study

As part of this research effort, a pilot study was conducted in order to determine the effectiveness and comprehensiveness of the research methods and techniques utilized. Within this pilot study, a sampling of 20 escapees and 20 non-escapes was examined according to the variables identified as influencial in determining prisoner escape propensity.

The prisoner files from which specific data elements would be drawn were examined for completeness and

clarity. Additionally, data elements were extracted and processed through the SPSS program constructed so as to determine the accuracy of the program at providing reliable statistical information.

These results of the inquiry indicated that all of the methodological practices employed as part of this examination were of sound construction and could be effectively utilized to examine the problem currently under review.

Summary

The preceding chapters have described the theoretical, literary, and methodological framework of this examination. The following chapter presents the summarized data pertinent to examining the hypothesis and the subsequent calculations of the data as applied to the areas and variables in question.

Footnotes

[1]William R. Klecka, Discriminant Analysis (Los Angeles: Sage Publications, Inc., 1980).

[2]Ibid. [3]Ibid.