



# Crime Management in Nigeria

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# **CRIME MANAGEMENT IN NIGERIA**

## **CHAPTER 2**

### **RESEARCH METHODS IN CRIME AND LAW ENFORCEMENT STUDIES**

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#### **INTRODUCTION**

Human society harbours myriad of problems that directly or indirectly affect the quality of life. As a result the need is always there to seek knowledge and understanding about such problems in order to proffer sustainable solutions. For instance, one of the devastating social ills confronting modern Nigerian society lies in the area of crime; this has taken an advanced dimension of recent which makes it a serious challenge to both government and the governed, particularly in the major cities such as Lagos and Abuja. Thus, the necessity of seeking insights about the immediate and remote causes of this menace in order to chart the course to reduce or eliminate it cannot be undermined. In essence, knowledge about social problems provides the understanding that suggests potent lines of actions that should bring solution.

There are at least four modes of seeking knowledge: authoritarian mode, mystical mode, rational mode, and the scientific mode (Frankfort-Nachmias and Nachmias, 1996). The authoritarian mode generates knowledge through individuals that are socially and politically regarded as qualified producers of knowledge. For example, oracles, archbishops and kings in traditional, theocratic, and monarchical societies respectively, may be recognized as sources of knowledge. In mystical mode, knowledge is sought through supernatural authorities such as prophets and diviners. The rationalistic mode has to do with strict adherence to the forms and rules of logic; this mode is based on two principles: that "human mind can understand the world independent of its observable phenomena and that forms of knowledge exist that are independent of our personal experiences" (Frankfort-Nachmias and Nachmias, 1996: 4). Thus, the scientific mode implies seeking knowledge through scientific procedures. It is generally believed that the true knowledge can only be got through scientific mode. Thus true knowledge about social problems such as crime and law

enforcement can only be gathered by faithful adherence to the scientific process. This paper undertakes a clear and concise presentation of the scientific methods employed in social enquiry.

### **CLASSIFICATIONS OF RESEARCH**

Researches are generally classified according to approach and strategy. These classifications are discussed as follows:

#### **CLASSIFICATION BY APPROACH**

In social research there are two main approaches. Saunders, Lewis and Thornhill (1997) named the two approaches as Positivism and Phenomenology. The positivist approach is essentially deductive and mainly quantitative. In this case research begins with fashioning hypotheses from a theory. A hypothesis means a testable statement about the relationship between two or more variables. (Suffice to define the concept variable as characteristics of a population that changes from one unit to another, for example, age, marital status, income, etc. So variables are the opposites of constants. Dependent variables are characteristics that are determined or caused by other variables, usually regarded as independent attributes causing change in dependent variables). In this approach, hypotheses are defined in operational terms indicating precisely how variables are to be measured in order to facilitate verification. This leads to collection of empirical facts and figures (data) which form the basis of testing the hypotheses. The outcome of the test either confirms or rejects the hypotheses. Modifications become necessary as far as the original theory is concerned if rejected. If empirical findings suggest the need to modify a theory it means the whole process has to be repeated. That is the researcher has to go back to the theory, make necessary revision and go through the process again to verify the propositions brought out of the revised theory. However, it should be noted that alternative exists whereby inductive procedure could be followed. In this case the research begins with data gathering and a theory is finally generated. The positivist approach comprises of five crucial attributes as highlighted by Gill and Johnson (1991):

1. It is deductive whereby theory is verified by empirical

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observation.

2. It seeks to establish and explain causal relationships between variables;
3. Quantitative data are usually deployed.
4. It employs control to allow the testing of hypotheses.
5. It uses highly structured methodology to facilitate validity and reliability (two concepts to be explained latter).

Phenomenology is the qualitative approach to social research. In this approach, researches are tailored towards providing answers to questions such as what is happening and why it is happening (Saunders, Lewis and Thornhill, 1997). This approach enables researchers to study phenomena in context. In other words, the contexts of social phenomena are very crucial to a researcher who decides to deploy the phenomenological approach. This approach adopts methods that are quite different from that of the positivists. Generally, while positivists are more concerned with quantitative procedures in seeking knowledge the phenomenologist adopt qualitative procedures. So the term quantitative research and qualitative research are often used as synonyms for positivism and phenomenology respectively. In some researches the two approaches may be combined (that is multiple approach research).

### **CLASSIFICATION BY PURPOSE**

Research is classified into three categories based on purpose namely exploratory, descriptive and explanatory. Exploratory research is conducted to find out what is happening and to get insights into a new phenomenon. This category of research is carried out to generate and develop hypotheses that are likely to be tested in further studies. Exploratory research is done to get a good grounding and a sense of direction for future research (Isiugo-Abanihe, 2002). This type of research could be done by undertaking thorough literature review or talking to experts in the particular field or conducting focus group discussions (Saunders, Lewis and Thornhill, 1997).

Descriptive studies have the major goal of deriving detailed and

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accurate profile of events. Descriptive research seeks to provide reliable picture of the characteristics of a given event or problem, community or group. Also, descriptive studies “presents a picture of the specific details of a situation, social settings or relationships” (Isiugo-Abanihe, 2002: 53). Most of the articles that are published in academic journals emanate from descriptive research.

Explanatory research includes studies that seek to establish causal relationships between variables. Studies of this nature concentrate on the relationships between variables that are responsible for a given situation or problem (Saunders, Lewis, and Thornhill, 1997). At this level the main objective is to provide reliable explanation for social problems by establishing the causal variables through statistical test.

For the purpose of illustration, let us assume that it was reported in a particular community that series of crimes were carried out mostly by young people. Law enforcement agents had tried to bring the situation under control to no avail. A female sociologist wanted to find out what was going to achieve this she undertook a critical review of the literature on crime. Thereafter she conducted a number of focus group discussions in the community on the subject matter to get a good grasp of what was happening. At this level she conducted exploratory research. Of course, it was possible for the researcher to have carried out a detailed description of the crime situation in the community; by this she would describe the social setting and relationships underlying the rate of crime in the community (descriptive research). She might as well go further by seeking out causal relationships between various independent variables and crime rate in the community in order to explain the situation and suggest ways of addressing it (this is explanatory research). Finally, it is important to bear in mind that these research approaches are not mutually exclusive in application.

### **THE RESEARCH PROCESS**

Acquisition of knowledge is the main goal of scientific research. Knowledge is scientific only if it is grounded in both logic and

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observation. "Scientists employ the criteria of logical validity and empirical validation to evaluate claims for knowledge" (Frankfort-Nachmias and Nachmias, 1996: 19). The processes involved in these two essential criteria are what translate into the research process. The number of steps involved may vary from one researcher to the other. But seven stages are crucial in any research regardless of who conducts the research.

Theory is central in the research process. Theory affects each of the stages and it is also affected by each. Theory is simply defined as "a formulation regarding the cause and effect relationship between two or more variables" (Gill and Johnson, 1991:166). Generally theory provides the framework within which research is done and ultimately the findings either validate hypotheses derived from theory or suggest modification. So theory provides framework for research and findings in turn contribute to its development. In every research it is expected of the researcher to identify relevant theories that should help in explaining the subject of concern. It may also be necessary to develop conceptual framework from theory (or theories) selected for the study. "In a conceptual framework descriptive categories are systematically placed in a broad structure of explicit propositions, statements of relationships between two or more empirical properties, to be accepted or rejected (Frankfort-Nachmias and Nachmias, 1996:38). Conceptual frameworks that must be rooted in theories are developed to specify the proposition to be tested in a study. In the sub-sections that follow the seven stages we go through in conducting research are concisely discussed. The discussion is aimed at equipping researchers working in the areas of crime and law enforcement management and other social problems with basic skill required in the conduct of research.

### **THE PROBLEM AND HYPOTHESIS**

As indicated earlier no research is an end in itself. Researches are carried out in order to illuminate problems confronting human society which should chart the course to solutions. We

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conduct research to find sustainable solution to social, economic and environmental problems that inhibit improved standard of living. So researchers are expected to look out for problem areas that are yet to be addressed and formulate research problems. For instance, a social researcher who is working in the area of crime and law enforcement management should find out aspects that have not been properly researched or solution is yet to be found. Research problems could be found through academic discussions, or from news media and academic journals.

When a problem area is identified the next thing to do is to fashion out a researchable topic on the problem for the purpose of carrying out scientific enquiry. Take note of the word researchable, this is necessary because it is not all topics that can be researched. A good research topic should indicate the problem to be explained; this is usually done by highlighting the dependent variable which may represent the problem to be solved. The goal of the research will be to identify the independent variables that significantly explain the problem. It is imperative for research topics to be framed in context. You can only place your research in context by undertaking thorough literature review. First, survey the literature and find out what has been done on the problem; this is so fundamental that if not properly done time may be spent on a research only to discover at the end that it is a worthless effort, maybe because the problem has been over researched or it is no longer a real research problem. Literature review at this level will broaden the researcher's knowledge on the problem and may equip him or her with necessary skill that may facilitate the study if it is worthwhile. It may also be necessary to speak with experts in the field.

Constructing a research topic is a very crucial aspect of research and it must be done bearing in mind a number of factors. It is expected of the researcher to be conscious of the expectations of either the examining body if the research is part of a course of study or that of a funding agency. Also, there is the need to

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consider access to data on the subject. The researcher should consider seriously the type of data required and how to source such data. Time frame within which the research should be done should also be considered before framing a topic. Similarly the available financial and other resources compared with what is needed to accomplish the task should be a primary concern in determining a research topic (Saunders, Lewis and Thornhill, 1997).

Hypothesis is a tentative statement about the relations between two or more variables. Hypotheses are tentative answers to research problem. While research problems are general questions about relations among variables hypotheses are tentative, concrete and testable answers (Frankfort-Nachmias and Nachmias, 1996). Hypotheses are to be determined at the beginning of a study and the number should be restricted to only those that will contribute to knowledge directly in the field (Isiugo-Abanihe, 2002). The best way of constructing testable hypotheses is to list out all the variables involved in a study and determine those that are related, pointing out the nature of relations existing among them. Thus hypotheses could be expressed indicating positive or negative relationships among variables. For instance, let us consider the following tentative statements:

- the higher the level of unemployment in a community the higher the rate of crime (positive relation)
- high literacy level reduces the stress of law enforcement management(negative relation).

Hypotheses are usually stated in forms of research hypothesis ( $H_a$ ) and null hypothesis ( $H_o$ ). The research hypothesis expresses the relation to be tested while the null which is also regarded as alternative hypothesis is stated as the opposite of the relation to be verified. It is the significance of hypotheses that are tested to either confirm or reject the tentative statements expressed in them. Whether hypotheses are stated as  $H_a$  or  $H_o$ , the task is to verify the existence or non-existence of indicated relationship among variables and this is tested at specified levels of significance (5 percent or 1 percent). Finally it is imperative to state hypotheses in



a clear, specific, testable and value-free manner (Frankfort-Nachmias and Nachmias, 1996).

### **RESEARCH DESIGN**

Research design is the most significant element of the research process (Sarantakos, 1998). It is in the design of a study that questions on whom to be studied, what to be observed and when observations are to be made are answered (Frankfort-Nachmias and Nachmias, 1996). Research design specifies the organization of the data collection and analysis towards the fulfillment of research goals (Isiugo-Abanihe, 2002). Different authors have put forward a number of research designs; in this paper five are discussed: Experimental, Cross-sectional, Case study, Longitudinal, and Panel designs. Experimental research design is very common in the natural sciences; it is seldom used in the social sciences (except that psychologists often employ it in their studies). Classical experimental research design comprises two groups, usually comparison is carried out between the two: experimental and control groups. The experimental group is the group exposed to independent variable (also called treatment) while the control group is not. The cases (or subjects) are assigned to the groups on a random basis (Frankfort-Nachmias and Nachmias, 1996). The dependent variable (usually designed as scores) is measured twice to assess the impact of the treatment. The first measurement is done prior to the application of the treatment to the experimental group (that is exposing the experimental group to the independent variables) - pretest. The second measurement is taken after the experimental group has been exposed to the independent variables - posttest. The difference in the scores derived from the group (both experimental and control group) before and after the treatment provide information on the impact of the independent variables. "If the difference in the experimental group is significantly larger than in the control group, it is inferred that the independent variable is causally related to the dependent variable" (Frankfort-Nachmias and Nachmias, 1996:101).

Cross-sectional designs are usually employed when the goal is to study a particular phenomenon at a particular time (Saunders,

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Lewis and Thornhill, 1997). It gives a snapshot view within a specified time period. This is the most predominant design utilized by social scientists. It is generally associated with survey research. Cross-sectional design on youth involvement in crime, for instance, will require obtaining a representative sample and asking series of questions targeted towards deriving information on crime involvement. Of course, cross-sectional designs are limited by the inability of the researcher to manipulate the independent variables and time element involved.

Another design is the case study, the development of detailed, intensive knowledge about a case or a small number of related cases is the main goal (Robson, 1993). This is likely the most appropriate when the objective is to gain a rich comprehension of the context of a research. The approach provides answers to questions such as why, what and how.

Longitudinal designs are concerned with studies that examine change in phenomena over a given period of time. It possesses a unique capacity of providing the opportunity for researchers to study change and development (Saunders, Lewis and Thornhill, 1997). Longitudinal studies are essentially designed to investigate changes that may be observed in phenomena by collecting data from a single sample two or more times.

Finally, researchers may adopt a Panel design in their studies whereby a sample is studied at two or more points in time - before and after - with exposure to independent variables (Frankfort-Nachmias, Nachmias, 1996). Panel studies provide a more reliable alternative to experimental designs that could be utilized in the social sciences.

### **MEASUREMENT**

Measurement is the beginning of operationalizing the research process. It is the act of assigning numerals to variables according to rules. Variables are characteristics of a population of interest to a researcher. Variables could be discrete or continuous. Discrete variables "classify observations according to the kind or quality of

their characteristics" while continuous variables "take on any value between two points on a scale" (Walsh, 1990: 7, 8). Data are generated through the values assigned to these variables that must necessarily be in accordance to rules. The different rules that guide measurement result to four levels of measurement that are hierarchical and cumulative: nominal, ordinal, interval and ratio.

At the level of nominal measure values are assigned to variables only for the purpose of classification. Values assigned to categories are mutually exclusive and exhaustive. The numerals assigned at this level lack the quality of numeracy, that they are not real numbers. That is why it is often said that nominal measurement produces the crudest form of data. For example, sex is a variable and to measure the sex of students caught engaging in examination malpractices, 1 may be assigned to Males and 2 to Females. So the 1 or 2 numerals are not numbers in the true sense of numeracy. But they are used to represent the sex of the students.

The next level of measurement is ordinal. In this case values are assigned to variables to reflect order or ranking in addition to classification. The ranking is done ranging from bottom to top (Walsh, 1990). The values only represent the place of a category in the range and they are transitive (that is the values are assigned to the categories of a variable in accordance to the rule of transitivity: if  $a > b$  and  $b > c$ , then  $a > c$ ). At this level of measurement variables are classified into mutually exclusive and exhaustive categories such that the numerals assigned could show clearly the rank or order existing among the categories. For instance, we could have examination malpractices classified into mild, serious, very serious, taking on 1, 2, 3 values respectively.

Measurement at the level of interval and ratio scales is usually considered as the levels where real measurement is done and better or more refined data are generated. Interval measurement possesses the attributes of nominal and ordinal scales and in addition reflects the unit of difference. Ordinal measurement

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shows ranks but does not show the unit of difference. Interval measurement assigns values with respect to the existence of equal unit. "there are precisely defined intervals between and among the observation; the interval between 6 and 7 is exactly the same as the interval between 24 and 25" (Walsh, 1990). The only problem with this scale of measurement is that it lacks a true zero beginning (absolute zero). So variables such as intelligence quotient (IQ) and temperature are measured on this scale. A zero score on an IQ test does not connote zero degree or does not mean total absence of heat. This is the reason for the fourth level of measurement - ratio scale. This level of measurement possesses an absolute zero beginning and a value of zero on it equals total absence of the attribute being measured. Variables such as amount, height, weight and such like are measured on this scale.

A good knowledge of the levels of measurement is required of all researchers because it is the major determinant of the statistical techniques to deploy in data analysis. Also, measurement is very crucial in the assessment of a research result with respect to validity and reliability (validity refers to how well the measures derived from the operation reflect the concept or variable and reliability refers to the consistency with which repeated measures produce the same results across time and across observers (Walsh, 1990:7). A measuring instrument is valid if it helps researchers to measure exactly what they intend to measure and the findings will only be reliable if internal and external consistencies are assured.

### **DATA COLLECTION**

This stage constitutes practical steps that operationalize research. From the onset the researcher should decide whether to use quantitative or qualitative data or both. Similarly, it is expected of the researcher to decide on whether primary or secondary data or both shall be employed in a study. If primary data are opted for, the process of getting a proportion of the population from which data could be elicited has to be set in motion. Population in research means "the aggregate of all cases that conform to some designated set of specifications" (Isidor Chein quoted in Frankfort-Nachmias

and Nachmias, 1996: 179). We can have the population of female prisoners, male prisoners, student deviants, married men and women, universities, polytechnics and so on. It is necessary that the particular population of interest to a researcher is determined from the initial stage. In virtually all researches it is impossible to access every member of the study population for reasons of cost and time. Generally a sample is derived to represent the population. A sample is the proportion of a population selected for the purpose of a study. The proportion is studied and findings are generalized about the whole population. It is for this reason that the selection must be done carefully and in a scientific manner. The processes involved in this selection (sampling) is generally categorized into two: probability and non-probability sampling techniques. The probability sampling techniques ensure that the probability (chance) of each sampling unit (each member of the population) in the sampling frame (complete listing of sampling units) is known and equal for all cases (Saunders, Lewis and Thornhill, 1998; Frankfort-Nachmias and Nachmias, 1996). But this is not possible with the non-probability techniques.

Simple random sampling is the best and most reliable but is seldom used in social science research because of non-availability of reliable sampling frame and its expensive nature, particularly if the population involved is large and dispersed. To use this design the first step is to prepare a complete sampling frame of the study population and assign serial number to each sampling unit beginning from zero. Then select the sample by choosing every unit whose number coincides with the random numbers. In practice the researcher reads off the random numbers and selects every sampling unit with serial number that tallies with the random numbers until the total sample size is obtained. Some researchers make use of lottery method whereby the sampling units are written on pieces of paper and kept together in a container (Isiugo-Abanihe, 2002). Sampling units that are chosen after thorough mix constitute the sample. But this method cannot be used when the study population is relatively large.

Systematic sampling design is another method used in deriving a

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sample from a study population. In this case the process begins with the determination of the sampling fraction it is given as the sample size ( $n$ ) divided by the total population ( $N$ ). For instance, if the total number of inmates in police cells is 1200 and the sample size is 200, the sampling fraction will be  $1/5$  ( $200/1000$ ). When the sampling fraction is determined the researcher selects the first item in the sample randomly and chooses every  $i^{\text{th}}$  item on the sampling frame (that is according to  $i^{\text{th}}$  interval). From our example, after the first item is randomly selected, every other  $5^{\text{th}}$  item is chosen to be part of the sample until the sample size is reached. An important caution that must be observed when using systematic sampling is to avoid a sample frame with specific pattern. This is necessary because a patterned sampling frame may yield a biased sample.

### 4.3.3.3. Stratified

The third design is the stratified random sampling. This method is inevitable when certain characteristics of a population are crucial to a study (Isiugo-Abanihe, 2002). It enables the researcher divide the study population into strata based on the variables or characteristics of interest. Then the sample is drawn from each stratum using either simple random or systematic sampling procedure. Stratified sampling ensures that the sample is representative because each of the strata is either proportionally (sample proportionate to stratum' size) or disproportionately (select equal number from each stratum usually determined on the basis of analytical considerations) represented (Frankfort-Nachmias and Nachmias, 1996; Saunders, Lewis and Thornhill, 1997).

### 4.3.3.4. Cluster

Cluster sampling design is usually considered as the least reliable of all the probability sampling methods. Here, the study population is grouped into clusters based on geographical or political divides. The sampling frame is the listing of all the clusters and not the population (this is why it is the least reliable of the probability sampling). Then a few clusters are included in the sample through a random process. This sampling design is essential when a study involves a large population with a very

wide geographical spread. For instance, in a study of all female prisoners in Nigeria, because of the country-wide spread of the population, it may be necessary to split the country into local government areas, select a number of the LGAs through simple random process and include all the female prisoners in the selected LGAs. Of course, the LGAs constitute the clusters involved in this study. This process may be more tedious if the population is a regular one. In such a case it could be necessary to break the country into clusters at states level; randomly select a few states, then split the states into LGAs and select a few LGAs in each chosen state randomly; maybe split the selected LGAs into wards and select a number of the Wards through random process in each chosen LGAs; data may be collected at the level of the Wards or split the wards into towns or villages. The design wherein the researcher goes through different stages until a convenient stage where data could be collected is regarded as multi-stage sampling design.

Generally, it is an essential requirement that the probabilities sampling design should be employed in scientific studies. Notwithstanding, there are a number of sampling designs whose procedures are not scientific, they are vulnerable to bias. Firstly, quota sampling which involves dividing a study population into specific groups and calculate a quota of sampling units for each group based on relevant and available information. The sample will comprise the quota from each of the groups. Secondly, sampling may be done purposively. In this regard sampling units are selected to be part of the sample based on the judgment of the researcher. Thus this sampling method is also called judgment sampling. Thirdly, when a study involves a population that is very difficult to identify, the only alternative is to contact one or two cases and ask them to identify other cases until desired sample size is obtained. This is known as snowball sampling design. Finally, convenience sampling involves selecting elements in the study population that are easiest to locate to constitute a sample.

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Having discussed sampling design, how do we determine the size of our sample? Although some researchers fix their sample size arbitrarily, it is better and more scientific to determine sample size statistically. Given below is the formula that could be applied to determine sample size if the study population is at least 10,000:

$$n = z^2 pq / d^2$$

Where  $n$  = sample size

$z$  = the normal deviate corresponding to the desired confidence level (for 95 percent confidence it is

1.96)

$p$  = the proportion of elements in the study population thought to have key characteristics being measured

$q$  = the opposite of  $p$  (i.e.  $q = 1 - p$ )

$d$  = degree of accuracy desired (i.e. level of significance) e.g. 0.05, 0.02, 0.01

For example, to determine the sample size required for a study of female law enforcement agents in Nigeria. Let us assume that the study population is over 10,000, the confidence level is given as 95 percent and the degree of accuracy is 0.03. Also, let us assume that 30 percent of the study population possesses the characteristic of interest in the study. The sample size will be:

$$n = \frac{1.96^2 * 0.30 * 0.70}{(0.03)^2}$$

$$n = 896$$

However, if the study population is less than 10,000 it is expected that a correction factor is applied to the sample size determined (Babalola, 1998). The formula to effect this is given as:

$$n_r = n / 1 + (n/N)$$

where  $n_r$  = the corrected sample size

$n$  = the sample size determined

$N$  = the study population



It is after the sample size is determined and sampling procedure to be adopted chosen that the real act of data collection could be pursued. Two types of data exist in the social sciences corresponding to the two methodological approaches in practice: quantitative data and qualitative data. As a result four major forms of data collection could be identified namely survey research, observation, qualitative research and secondary data analyses (Frankfort-Nachmias and Nachmias, 1996). Survey research could be in the form of personal interview or through the administration of structured questionnaires containing close-ended or open-ended questions or both. Observational method of data collection could take the form of participant or non-participant and this could be used in studying non-verbal and verbal behaviour. Also focus group discussions and in-depth interviews could be employed in eliciting qualitative data (facts expressed in a non-numerical mode). A researcher may also base his or her study on existing data in form of documents, for instance the records kept or annual records prepared by the force or the Internal Affairs Ministry. For the reason of space this method cannot be discussed in detail here.

### **DATA ANALYSIS AND GENERALIZATION**

The previous section makes it clear that quantitative and qualitative data are collected in social science research. Quantitative data analysis begins with data preparation. This involves cleaning and coding for the purpose of computer aided analysis. Data analysis software that has been of tremendous use in the social sciences is the SPSS. A similar package is the SAT. All that is expected is basic knowledge of the software operations and the skill of interpreting the printout generated from various analytical manipulations. However, it should be noted that the choice of statistics to use in our analysis must correspond to the level of measurement that produced the data. The general guiding principles are presented in table 1.

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**TABLE 1: DATA ANALYSIS GUIDELINES.**

To:	Categorical	Quantifiable
	Nominal/Ordinal	Interval/Ratio
Test whether two variables are significantly associated	Chi square (data may require grouping)	Chi square if variables are grouped into discrete classes
Test whether two groups (categories) are significantly different		Independent t-test or paired t-test
Test whether three or more groups (categories) are significantly different		Analysis of variance (ANOVA)
Assess the	Spearman's Rank	Pearson's Product
strength of relationship between two variables	Correlation Coefficient	Moment Correlation Coefficient (PMCC)
Assess the strength of a Relationship between one or more Independent variables		Regression Coefficient
Predict the value of a dependent variable from one or more independent variables		Regression Coefficient
Determine relative changes over time		Index numbers
Determine the trend over time of a series of data		Time series (moving averages), Regression equation

Adapted (and revised) from Saunders, Lewis and Thornhill (1997)

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With respect to qualitative data there are no strict rules. But it is important to note that volumes of data may be generated; depending on the objectives of the study the volumes must be organized and interpreted to make sense. Although computer software (for examples, ATLAS/ti and NUD.IST) now exist that could prove very valuable in handling qualitative data, researchers may have to marry mechanical and electronic analysis because the existing software are written to handle data in the western world (Isiugo-Abanihe and Obono, 2002). So the researcher may have to translate the data into English language before the software could be utilized. Besides it is also necessary to cite quotations from the data in the report for the purpose of demonstration.

Generalization is possible when data collection is done from scientific and representative sample. The findings derived from data analysis may be generalized about the whole population where there is evidence that the population parameters (statistical values derived from population data, e.g, average, mode, median, etc.) could be estimated from the sample statistics (the statistical values derived from sample data). Also, generalization may be further enhanced if the researcher could carry out test of significance. This implies the test that provides information on how many times the result would be true if tried in a number of cases. In the social sciences, test of significance is done at the 0.05 level. This connotes any finding tested at this level will be true 95 times out of every 100 trials. That is 95 percent confidence. So in order to generalize in crime and law enforcement management studies it will be imperative to test the hypotheses or findings at the 0.05 significant level.

#### **WRITING RESEARCH REPORT**

The act of communicating the findings of a research project is as important as the whole effort. If a research report is not properly written and in line with specifications the effort may amount to waste. In this regard the basic elements expected in student report are highlighted to guide undergraduates in the preparation

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of original long essay. Generally, the following are crucial:

- Introduction/background
- Problem statement
- Justification of study
- Research questions
- Aim and objectives
- Study area
- Literature review
- Theoretical framework/conceptual framework
- Hypotheses
- Methodology
- Data analysis/Discussion
- Summary
- Conclusions
- Recommendations
- Areas for further studies
- References.

The introduction or background to the study provides information on what the research is all about, why is the study necessary and the general question the study is expected to answer. This can only be done by first of all reading through relevant literatures to broaden knowledge on the subject matter of the topic. Problem statement is where the researcher highlights the main problem the study has addressed. Usually this is done by providing brief introduction to the problem, and then poses the problem in question. For instance, in a study of upsurge in campus cultism, the question may be, can it be said that societal militarization is responsible for devastating operations of cultists on our campuses? By the time two or three or more of such questions are stated along with brief explanations the problem has been stated. It is necessary to bear in mind that the expected relationships between the dependent and independent variables should be highlighted. This is why problem statement flows from the topic directly.

The next element is study justification. Under this section it is

expected of the researcher to show clearly why this study is significant. What makes the study important in view of what has been done. A study may be justified on the grounds of persistent unanswered questions, different study population, different methodology or rarity of research on the subject. Another element is research question. Under this heading the researcher poses the questions the study will answer. This may be broken into three or more. The questions also flow from the problem statement. That is there is a link between the statement of problem and research questions. Also this is linked to aim and objectives. Under this heading, the general aim of the study is stated and the ways to achieve it are highlighted in forms of objectives. Then a brief introduction to the study area is presented by describing the location of the area, the population, culture and social life in general. The element so far are usually contained in chapter one of the long essay.

Literature review is a very crucial section of the long essay. This exercise provides researchers the opportunity to place their research in context (Sarantakos, 1998). Relevant literatures are reviewed with the aim of pointing out the gap the present study should fill. It is usually critically done and split into sections in line with the objectives of the study. Academic journals, edited books, books of abstracts, indexes and text books as well as other reference materials are very good sources of information in this respect. CD ROMs are also available to facilitate literature reviews. The internet stands as the most important source of most recent publications. Related to this is the section on theoretical/conceptual framework. In this section relevant theories that should provide the framework for the study are reviewed (that is theories that should explain the subject matter of the study). Usually, the researcher derives a conceptual framework from the theories whereby the relationships between the variables involved in the study are categorically and succinctly explained. It is the conceptual framework that highlights various propositions to

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be tested in the study. The hypotheses to be verified in the study are also stated below literature review and theoretical/conceptual framework. These elements constitute chapter two in the long essay. It should also be borne in mind that a list of the references should be kept.

Methodology is another important chapter whereby the study population, sample size and sampling technique, data type and the how of data collection as well as how data are analyzed are discussed. This chapter is usually very significant since the contribution of the study to knowledge is usually weighed against the methodology producing the findings (Frankfort-Nachmias and Nachmias, 1996). Then in the chapter four data are analyzed, presented and discussed. Generally, univariate (socio-economic and demographic background of respondents), bivariate (cross-tabulations relating two variables while controlling for one or two intervening variables) and multivariate (measuring the impact of two or more independent variables on dependent variables) analyses are presented and discussed. The trend and pattern exhibited by data are discussed. It is also important that the findings are compared with the literature whether confirming or disconfirming.

In the last chapter (5), the content of all the previous chapters are summarized, then space is given to the clear summary of the major findings. Conclusions are also drawn from the major findings in line with the aim and objectives of the study (also pointing out the implications for the research questions and contributions to knowledge). Based on the conclusions recommendations are highlighted (some call this policy implications). Finally a section is devoted to areas for further studies. Usually the end of one research leads to another, so the research process is more of a cycle. The project report ends with a list of references, which is the alphabetical listing of all the references cited in the body of the work. This is preferred to bibliography in long essay preparation. Finally, at the end of

the write up, one or two page abstract of the study should be prepared. In this section, the topic, method, major findings and policy implications are highlighted. It is usually placed on one of the first few pages before chapter one when binding the report.

### **CONCLUSION**

The multifaceted problems confronting society in the areas of crime and law enforcement management as well as other related cases demand research. The ultimate aim of conducting research is to provide knowledge about problems. This illuminates understanding and highlights necessary steps to be taken towards proffering solutions. It is therefore imperative that such knowledge is not acquired anyhow otherwise policy decisions based on it may never yield desired result. Thus scientific research is the only option. This article has presented an overview of the basic procedures that could generate valid and reliable knowledge. In addition the content of this paper will be of valuable use to students in the social sciences who are preparing their original long essays. However, it should be borne in mind that the paper is not meant to be a perfect substitute to basic texts on research methods. Rather it is to be used as a working tool along with any available good text on the subject matter.

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