AN ANALYSIS OF THE M.B.A. MANAGEMENT PROJECTS (1981-1988) IN THE FACULTY OF COMMERCE, UNIVERSITY OF NAIROBI.

BY

MIRIE MWANGI W.

A Management Research Project Submitted in Partial Fulfillment of the Requirements for the Degree of Masters of Business and Administration, Faculty of Commerce, University of Nairobi.

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DECLARATION

This Management Research Project is my original work and has not been presented for a degree in any other University.

Signed ---------- Date 29/9/89

MIRIE MWANGI WANGENYE

This Management Research Project has been submitted for Examination with my approval as University Supervisor.

Signed ---------- Date 29/9/89.

MR. DANNY FERNANDES

DEDICATION

To Mwangi Wangenye,

Wanjiku Mwangi,

My parents.

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ACKNOWLEDGMENT

The sum of the effort of very many people is what combined to yield this report.

Specifically, my Supervisor, Mr. Danny Fernandes, was so immensely helpful and available at all times I needed him that I shall forever feel indebted to him. Without him, this project would be very different. Prof. J. H. Kimura, Dean Faculty of Commerce, was also extremely helpful.

I express my sincere gratitude to all who made my stay in the University of Nairobi such a success. To them all - ASANTE!

All the deficiencies, errors that may herein be contained are my responsibility.

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ABSTRACT

When students in the Faculty of Commerce are researching for and writing their Management Research Projects, past reports provide a useful guide of what is expected. The task of perusing through these reports is tedious and could be made easier by summarising the salient features present in them. The summary could also include the subject areas of the past projects.

This study set out to provide an analytical description of the M.B.A. projects with respect to methodology employed, citation styles and testing for differences in respect of same across the three departments of the Faculty of Commerce. It was also the aim of the study to categorise the projects into suitable subject areas for purposes of designing a computer based data system.

The requisite data was obtained from the Project Reports, copies of which are available in the Dean's office, and the main University and graduate libraries, among other places.

The analytical description was done by providing summary statistics in respect of each chosen variable or dimension. It was also found that

the Projects are not homogeneous across the three departments in respect of some variables such as choice of either exploratory or conclusive research design; sampling versus no sampling; secondary versus primary data; mail versus personal interview method of quetionnaire administration; and using versus not using computer.

For other variables like average page lengths; average number of citations from journals; average density of citations from journals, books; location of citations; and in respect of choice of probability versus non-probability sampling; simple random versus systematic sampling; convenience versus judgment samples; and statistical versus non-statistical data analysis techniques there was not sufficient evidence to rule out homogeneity.

The subject area classification was carried out and the database was designed using the dBase III plus computer package.

Finally the results ought to be read in light of the 'limitations of the study' cited. These include the fact that personal judgment was used in

subject area classification; and the number of words per page is not constant (thus citation density is only a rough indicator of reality).

SECTION 1

INTRODUCTION

The Master of Business and Administration (M.B.A.) programme in the University of Nairobi started in 1972 and had its first graduates in the year 1974 (Faculty of Commerce Handbook 1982). The same Handbook lists the objectives of the M.B.A programme as:

> "...to help the student acquire the requisite skills and knowledge so that he can analyse and solve complex organizational problems of change in business, government and other institutions. This major objective is condensed into the following sub-objectives:
>
> (i) For the student to acquire a knowledge of the major concepts and theories necessary for effective management;
>
> (ii) for the student to develop skills in identifying, defining, analysing and solving complex problems;
>
> (iii) for the student to become more effective in interpersonal relations such as group dynamics, consultation and leadership;
>
> (iv) for the student to develop self-awareness of his values, beliefs, goals and self-reliance".

Students going through the M.B.A. programme write term papers, independent paper(s) (optional) and a final Management Project. These three write-ups are either desk or field research. The exact na-

ture and level of rigour expected of these papers is not formally specified but is so done by the lecturers and/or supervisors.

1.1 Postgraduate Research

Emory(1980:8) defines research as "an enquiry carried out to secure information for solving problems". There are various meanings of the term 'research'. For example, Martin W. Essigmann writing in Knowles(1970: p2-150) states:

> "In the non-science liberal art areas, research includes scholarly work such as reading to formulate new instructional plans or programs; and similarly, in education, it may involve the application of scientific methodologies to studies aimed toward the promotion of good teaching".

However research is defined, a major endeavour of any university is to engage in it. Raybould(1951:2) summarises it all very simply when he writes; "The most obvious functions of universities are research and teaching". Echoing the same sentiments, Thornton and Stephens (1977:119) wrote;

> "At the heart of the university ideal lies a commitment to the advancement of knowledge through scholarly writing and research and publication. It is a task that university departments have the intellectual resources to do".

Since postgraduate students may eventually become lecturers and professors in a university, and given the importance attached to research in universities, it is necessary to train them in carrying out research. The evaluation of and the quality of such research is discussed in the Section on Literature Review, page 7.

1.2 Research Work Databases:

The term database has no standard, precise definition(Burch 1983:163). Nevertheless, authors have attempted some definitions, for example Hicks,Jr.(1987:46) writes that:

> "A database consists of all the files of an organisation that are structured and integrated to facilitate information retrieval and update."

Clearly, a database must among other things facilitate information or data retrieval.

To create a database for research works it is important to categorise them into respective subject areas. This task is not too difficult, and as Winthrop(1970) asserts:

> "...the classification of scholarly books and papers usually presents little difficulty in academic life. This is especially true of work which is unambiguously within a traditional academic fie' "

The need for categorisation (into subject areas) is important in that a reseacher would wish to consult earlier research works in specific areas of study. Such consultation would be facilitated if the database contains fields detailing or specifying the subject areas of each work.

1.3 Statement of the Problem.

In the event that one is required to undertake a task, then such a person would be given rules to follow in accomplishing the task. If no such rules are readily available, then a useful guide would be similar tasks done in the past.

For a student to have a good 'feel' of what is expected, for example in a Management Research Project, it may be necessary to browse through a number of completed project reports. Even then, their diversity may baffle the student. It would therefore be very useful if there is a reference which summarises the salient features of all the research project reports in the Faculty to date.

Even when a student has gone through a summary of salient features of past Management Projects, he may still want to have a more

detailed look at reports that are in his area of interest, or that used a certain statistical tool. A database set up with appropriate fields would facilitate this. As O'Brien (1986) has put it:

> "The superior service and performance of database processing is a result of the integration of data required by the database concept, the availability of fast and high-capacity direct access storage devices, and the use of powerful database management systems that greatly facilitate the control and use of databases."

1.4 Objectives of the Study.

The objectives of this study are two fold:

1. To provide an analytical description of the M.B.A. project reports with respect to:
   a) methodology employed
   b) citation styles

   and to test whether there are any discernible differences in respect of same across the three departments of the Faculty of Commerce.

2. To categorise the projects into suitable subject area fields and subsequently design a computerised database system in respect of them.

1.5 Importance of the Study

It is expected that the study will be of interest and value to the following groups of persons:

1. M.B.A. students in their endeavours to undertake a research project. They will have a 'feel' of the past projects done in the Faculty, without necessarily having to do the tedious work of browsing through volumes of same.

2. Lecturers in the M.B.A. programme, to set some standards on methodology, and citations to be observed by postgraduate students reporting research work.

3. The Faculty M.B.A. review committee currently undertaking a study of the present structure of the M.B.A. programme.

4. Groups (1) and (2) above plus scholars in general who would wish to consult the project reports. This will be facilitated by the database on subject areas covered by the projects done so far.

It is also hoped that this research could serve as a stimulus for studying scholarly output in the other Faculties of the University.

SECTION 2

LITERATURE REVIEW

Research on scholarly works is a sparsely treaded field. When one considers postgraduate research as such, the problem apparently becomes more acute. Nevertheless, there have been some attempts to set standards for evaluating research work. These include standards on suitable research methodologies and citation styles.

2.1 Research in Universities:

That research is one of the major functions of any university cannot be overemphasised. For example Milton(1976:471) wrote:

> "...but it is clear that the blessed trinity of academe has three parts: teaching, service and research and, paraphrasing St. Paul, the greatest of these is research."

and Lofthouse (1974:59) said:

> "Although a university has many goals, it is frequently argued that the research goal dominates the attention of academics because research as measured by published articles and books, is rewarded by promotion. Accordingly academics as maximising individuals will stress research, and this gives rise to the cry 'publish or perish'."

Similarly, Thornton and Stephens(1977:119) wrote that at the heart of the university ideal lies a commitment to the advancement of knowledge through scholarly writing and research and publication. It is not only universities that produce research and publication works, as borne witness by Thornton and Stephens(1977;119) when they asserted:

> "The issue of writing and research is not exclusively a university matter."

Whether universities do not have a monopoly in research and writing and whether their goals are too simply stated are not the main issues. The issues are that research is carried out in universities, and it is very important.

Rowe(1960:253), writing about postgraduate research held that an important part of the task of a university is the training of research workers Milton(1976:473) held that the most important dimension of research reflects the commitment of the university not only to transmit knowledge but also to generate it.

If postgraduate research is focused on, peculiar issues come to light. The student's research may be part of a broad work, for example a professor's project, as held by Hartuett and Katz(1977:652), who stated:

> "Often students constitute something like a cheap labour force for the professor's research project, even if it is justified as research training."

It is due to the training facet that postgraduate research is not very useful as an end on its own, as Merrison(1973:47) holds:

> "....one should not take postgraduates' research too seriously: after all, it was primarily a teaching experience, and not a mature contribution to knowledge".

Wishing to touch on the quality of graduate research invariably necessitates mention of studies on universities. Schils(1961:14) wrote:

> "The contemporary university takes the universe and all that goes on within it as its object of study. Why should it not also take itself as an object of disciplined enquiry?"

Thus it would be important to carry out studies of the academics (of course by other academics). This would be beneficial in that thereafter, the academics in carrying out research on other areas of the universe may have had an opportunity to "have their house in order". This research on academics has not been the case as Altbach(1977:131) says:

> "Research on the academic profession has been a neglected sub-speciality within the relatively new field of higher education studies;"

This is unusual since academics are trained to be critical and it would therefore be suprising if they were uncritical of each other's work(Lofthouse 1974:72).

Altbach(1977:132) re-emphasises his point when he says that social scientists have long conducted research on juvenile delinquents, tribal aborigines, and religious sects but that they have seldom turned their analytical tools on themselves and their colleagues.

Maybe this state of affairs arises due to research on academics not being straight forward i.e. research on academics is a complex matter(Altbach 1977:132)

The reason why we would wish to know the quality of graduate research work is primarily for student evaluation purposes.

> "Examining is a word with a multitude of aspects. One of these the ability to place students in a fairly reliable order of merit is the one which comes immediately to the mind of the university examiner, and from this comes an extension, that he is able to place them in classes with high degree of reliability-"(Dale 1959:84).

And since:

> "....Universities exist to sort out the high-flying sheep from the pedestrian goats,....."(Jones 1979:514),

then evaluation of the required research work is very necessary to determine its quality.

What is quality?

> "Perhaps a beginning consists of clearly recognising that quality is a value judgment and that neither philosophers nor physical scientists are exempt from this starting point"(Elton and Rodger(1973:435).

Echoing the same sentiments, the same authors(1973:439) wrote,

> "Quality in graduate education, like love, appears to exist in the eye of the beholder."

Thus the whole issue of evaluating graduate research work becomes extremely tricky. And Carter(1972:81), writing about all research works carried out in universities stated:

> "But the greater part of university research cannot be assigned any economic value and is not undertaken for economic reasons. And how does one give a value, whether economic or on any other scale to a new Testament scholar, or a man profoundly learned in a dead language like cormish?".

Therefore it becomes extremely difficult to have a standard (an objective one) that would serve as a guide to judge the quality of research. This is summarised very well by Martin W. Essigmann in Knowles(1970,p2-172) when he wrote;

> "A factor defining quantitatively the effectiveness of research in the university complex would be extremely handy to have available when decisions concerning the future of specific graduate programs need to be made. The difficulties of arriving at a universal figure of merit are obvious due to the nature of the variables involved, and to the best of

the authors' knowledge none has been found. Furthermore, it may be folly to suggest that one might exist, since this would be in a certain sense tantamount to establishing a universal standard for excellence."

Thus in conclusion, the paper holds that research in universities is extremely important. Similarly postgraduate research is crucial, and especially for training purposes. Nevertheless quality of research work is a fairly subjective issue.

2.2 Research Methodologies

In carrying out a study, a plan or blueprint has to be followed.Selltz, Wrightsman, and Cook(1976) define research design as:

> "....the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."

There are many classifications of research designs as given by various authors, for example Emory(1980), Rummel and Ballaine (1963) Boyd et al(1988). The latter gives these as exploratory and conclusive research. Conclusive research , in turn, consists of descriptive s 'ies (case and statistical) and experimental stu .

Exploratory studies have as their major purpose the identification of problems and more precise formulation of the problems(Boyd:40). The design of exploratory studies is characterised by great amount of flexibility(Emory:62). By definition, a study is exploratory when a researcher is involved in investigating an area or subject in which he is not sufficiently knowledagable to have formulated detailed research questions(Boyd:40).

No clear hypotheses have been developed about the problem(Emory:62). The researcher is seeking information which will enable him formulate specific research questions and/or to state a hypothesis about the problem(Boyd:40). Despite the necessity of flexibility in exploratory study design, Boyd (1988) distinguishes three separate stages which are usually included in exploratory studies.

First is the search of secondary sources: Secondary sources of information are the rough equivalent of the literature on the subject. It is the rare research problem for which there is no relevant information to be found by a relatively quick and inexpensive search of the literature(Emory:62).

Accumulated company research reports, trade association publications, Government documents and company records such as those kept for accounting and sales analysis purposes are all fruitful sources of information.

The second stage is obtaining information from knowledgeable persons: This is also called an experience survey or a pilot survey. The procedure is to look for competent individuals and talk with them about the problem(Emory:63).

The final stage is 'Examination of analogous situations': It is also logical that one will want to examine analogous situations to determine what can be learnt about the nature of the problem and its variables(Boyd:52).

Conclusive Research is divided into descriptive and causal or experimental research(Boyd). Conclusive research provides information which helps the executive make a rational decision. In some instances, particularly if an experiment is conducted, the research may come close to specifying the precise alternatives to choose. In other cases, especially with descriptive studies, the research will only partially clarify the situation and much will be left to executives' judgment.

Descriptive research in contrast to exploratory research is marked by the prior formulation of specific research questions. The researcher already knows a lot about the research problem, perhaps as a result of exploratory study.

The descriptive study is typically concerned with determining the frequency with which something occurs or the relationship between two variables(Boyd:65). It is normally guided by an initial hypothesis, and is also characterised by a pre-planned and structured design(Emory:62).

Descriptive study designs can further be subdivided into case method and statistical survey(Boyd). The case method involves an intensive study of relatively small number of situations(even as few as one)(Boyd:67).

The statistical method differs from the case method in the number of cases or units studied and in the comprehensiveness of the study of each unit or item(Boyd:67). While the case method involves the complete study of a few items, units, the statistical method involves the study of a few factors in a larger number of units or respondents(Boyd:67).

A Causal(experimental) research design is concerned with determining cause and effect relationships. Causal studies typically take the form of experiments since experiments are best suited to determine cause and effect(Emory:70).

If all possible information needed to solve a problem could be collected there would be no need to sample(Rummel:61). We can rarely do this however because of limitations of the amount we can afford to spend, the time we can take or other reasons(Rummel:61). Four major reasons as to why samples are taken include cost, time, accuracy and destructive nature of the measurement(Emory:276).

With respect of sampling design the researcher has the choice of using probability or non-probability samples. A probability sample is one in which the sampling units are selected by chance and for which there is a known chance of each unit being selected(Boyd:359). A non-probability sample on the other hand, is one which chance selection procedures are not used(Boyd:359).

Probability samples are selected by use of a stable, independent data generation process(Emory). There are two examples as hereunder mentioned.

A simple random sample(SRS) is selected either by use of random number tables or the lottery process. In addition to being a probability sample, a SRS has the characteristics of consisting of single units each of which is drawn from an un-stratified population with equal probability of each unit being selected by a single stage procedure(Rummel:72).

A systematic sample is similar to SRS. This process involves picking a random starting point and then picking every Kth unit in the sampling frame(where K=total number of units divided by sample size in units)(Rummel:74). This is the equivalent of a SRS so long as one can be assured that changes in the population do not occur at intervals equal to K(Rummel:74).

There are several kinds of non-probability samples in common use. Convenience sample is one in which the only criterion for selecting the sampling units is the convenience of the samples(Emory:280). Convenience samples are often used in exploratory situations where there is a need to get only an approximation of the actual value quickly and inexpensively(Emory:280). Commonly used convenience samples are associates, friends, family members and passers-by.

Quota sample is one selected in such a way that some characteristics of interest are represented in the sample in the same proportion as they are in the population(Emory:281). Quota samples are widely used in consumer panels. The reason for classifying quota samples in non-probability sampling design is that the selection of units is not done in a random manner(Boyd:412).

A distinction that can be made is the one between single unit and cluster sampling procedures(Boyd). In single unit sampling, each sampling unit is selected separately(Emory). In cluster sampling, the units are selected in groups(Emory). If the unit is a household for instance, single sampling will require that each household be selected separately. On the other hand one form of cluster sampling would be to change the sampling units to city blocks or estates and to take every household on each block selected.

In respect of data the researcher can use primary or secondary data.

> "Secondary data is data collected by someone else for the purposes other than solving the problem being investigated"(Boyd:160).

It serves as the base and the starting point for the solution of nearly all business problems, i.e it provides the background and serves to indicate what is already known. This is the equivalent of literature review. When sufficient secondary data are available, considerable time and money may be saved(Emory).

Primary data are data developed in a research project for a specific purpose as stated in the research objectives(Boyd:15). The purpose of collecting primary data is to answer the questions posed by the defined problem area.

In collecting primary data the researcher has to make the decision of whether he shall use observation or communication(survey)(Emory:157). In the case where the researcher is collecting data through questioning the research instrument he shall use is called a questionnaire. The questionnaire can be administered in three ways, namely: through the telephone, by mail or through a personal interview(Boyd).

2.3 Citation Methodologies

When one has or is writing a paper, use may be made of materials or works accomplished by others. The way to acknowledge using anothers' ideas or document is to cite the source.

To dispel any confusion that may exist between the terms citation and reference, Entwistle(1973:12) suggests using each instance of footnoting (or referral) of earlier material and any separate item or work that is footnoted or referred to (irrespective of the number of times) respectively for the two.

There are various ways of writing citations, such as those proposed by Faculty of Commerce(A Manual for Research and writing) and Turabian(1982). These include putting the reference or source at the foot of the page; embedding the source within the text; or even showing all the sources at the end of each chapter/section or whole paper.

In the event of wishing to know or determine the characteristics of materials used by writers in a given subject area, a citation analysis would be done (Turpin 1974:5).

The results of a citation analysis would assist researchers know which works may be important (through the number of times they are cited). Unfortunately all citation analyses suffer from a very great drawback. This weakness has been highlighted by Turpin(1974:7):

> "The major disadvantage is that we have no assurance that everything cited has been used or that everything used has been cited. The technique will produce figures which tell us what an author has used(or has recommended for use) but not why or how it has been used. However, the fact that it has been cited at all must indicate that a work is a of some importance to the author".

2.4 Databases on Research Work

Various authors give advantages of the database system. For example Hicks Jr. (1987:200) gives these as: Elimination of data redundancy; associates related data; allows program/ data independence; improves the interface between the user and the system and; increases security and integration of data. On the other hand, Mandell(1982:388) gives these as:

> "-Data redundancy is minimised.
> -Data can be stored in a manner that is useful for a wide variety of applications.
> -Updating involves only one copy of the data.
> -The system can handle requests that previously may have spanned several departments."

Whatever or however authors state the advantages, various things are common. A database, even by virtue of its name should have more information(or data) available more centrally or in a more accessibe manner than if the information or data were stored otherwise. And not to suffice, this data or information must be quite easily retrievable.

Databases also have some disadvantages. Mandell(1982:388) lists these as:

> "-An error in one input data record may be propagated throughout the database.
> -Design and implementation of a database system requires highly skilled well-trained people.
> -Major attention must be given to the security of the system, since all the data resources of the organisation are collected in a repository, that is readily accessible to data-base users.
> -Traditional processing jobs may run slower."

Hicks, Jr.(1987:217) says that in any case the disadvantages of database management systems are outweighed by the advantages.

In creating a database for research works, categorisation of same according to subject area covered is paramount. Buckley and Label(1976:1) state that:

> "Classification achieves two objectives simultaneously: it distinguishes among elements of a set, and it gr s ele-ments having similar attributes into subsets of the universal set,....."

Therefore in classifying research works according to subjects covered, these two objectives ought to be attained. The same authors[Buckley and Label(1976:2)] give four fundaments of good classification. These are:

> "1. The properties of a chosen classification should be adhered to consistently.
>
> 2. The subsets of a given universe should be exhaustive, i.e they should jointly cover the whole field.
>
> 3. The subsets should be pairwise disjoint, i.e be mutually exclusive.
>
> 4. There should be a preservation of hierachical integrity,i.e elements of one hierachical rank should not be confused or mixed with elements of some other rank."

Each of these fundaments will be touched on as it relates to subject-classification of research works.

In the instance that the works are consistently classified according to subject area covered, then fundament 1. is not violated. To overcome an instance where some subject area may be left out a subject name by the ambiguous title of 'others' would suffice and hence fundament 2. would not be violated.

The third fundament presents problems. Subject areas overlap and hence are not mutually exclusive. And again, some research works covers more areas than one, as Winthrop(1970:547) points out:

> "....many scholars however, publish books or papers which are not within a traditional field; sometimes these are hybrids of two established fields;....".

The fourth fundament is also not easy to adhere to. Different researchers may show, for example, Finance to be a subdivision of Economics, whereas others may show the two as distinct subjects. Whatever the 'correct' situation happens to be, the other automatically violates the fourth fundament.

It thus becomes clear that classification of research works cannot be very 'neat', i.e. that studies aiming at so doing are:

> "....impotent because they violate the canons of good classification" [Buckley and Label 1976:2)].

Nevertheless, an attempt can be made to classify research works, since even, for example textbooks in libraries, are classified.

SECTION 3

RESEARCH DESIGN

The population of interest consisted of all the M.B.A. projects completed in the Faculty of Commerce, University of Nairobi (1981-1988). There are 85 of such projects. Because of the need to design a database and also the population is not very large, all the projects were included in the study.

3.1 Data Collection:

The study made use of secondary data. This was obtained from the past (1981-1988) M.B.A. projects. Research Assistants were made use of and were shown how to extract data from the projects. This data is the year of authorship, the author's name, the title of the project, the project length and finally the citations from the various sources(journals, books, and sources other than the first two).

The researcher collected data in respect of department of author, subject area of the project research methodology, type of data use, question-

naire administration method, data analysis technique, whether computer was used or not and finally on the type of citations.(see Appendix 1, page 57, for the data collection form).

3.2 Data Analysis:

Data analysis on research methodologies employed and citation styles was done using the STATGRAPHICS statistical package on a microcomputer. The project subject area database was constructed using the dBase III plus package.

3.3.1 Research Methodology Employed and Citations Styles.

Various summary statistics were calculated for each variable - for example project lengths. This was done for each of the three departments and for the three of them combined. An analysis of variance(ANOVA) was then carried out to test for differences of means across the three departments in respect of each variable whose summary statistic was calculated.

Where the projects emanating from the three departments were classified into some groups, for example on the type of data (primary or secondary) used, a Chi-square Contingency table analysis was carried out to test whether the proportions in the three departments was the same.

3.3.2 Project Subject Area Database

A computer database (using the dBase III Plus package) was designed consisting of the following fields for each record:

1. Project Title
2. Researcher's Name
3. Year of research
4. Department of Researcher
5. Major subject area
6. Minor subject area 1
7. Minor subject area 2

The subject areas used in the categorisation are:

Accounting

Auditing

Computing Science

Finance

Operations Research

Marketing

General Management

Statistics

Insurance

Banking

Education

Taxation

Librarianship

The above categories were selected by carrying out a preliminary survey on the projects and by incorporating suggestions from Faculty staff.

SECTION 4

DATA ANALYSIS AND RESULTS

In this Section the following abbreviations are used in tabulated data:

A - Department of Accounting

B - Department of Business Administration

M - Department of Management Science

C - The above three departments combined

X^2c - Critical value of X^2 (at 95% level of confidence)

4.1 Methodologies Employed

The Table on the next page shows how the projects were distributed in respect of Research design. One would expect the projects in the Management Science and Accounting departments to contain more conclusive studies than ones in the Business Administration department. This seems to be borne out by the results.

TABLE 1

Distribution of Research Design

Type	A	%	M	%	B	%	C	%
Exploratory	16	64	3	18.7	34	77.3	53	62.3
Conclusive	9	36	13	81.3	10	22.7	32	37.7
Total	25	100	16	100	44	100	85	100

Calculated X^2 = 17.758 X^2c = 5.991 at 2df.

From the X^2 it may be concluded that the distribution of the projects across the three departments in respect of being either Exploratory or Conclusive is not the same.

In respect of sampling, Table 2 overleaf shows the distribution of those projects that used as opposed to those that did not employ any sampling.

TABLE 2

Distribution of Sampling

Type	A	%	M	%	B	%	C	%
Sampling	12	48	5	31.2	30	68.2	47	55.3
No Sampling	13	52	11	68.8	14	31.8	38	44.7
Total	25	100	16	100	44	100	85	100

Calculated X^2 = 12.387 X^2c = 5.991 at 2df.

It can thus be concluded that there are difference among the three departments in respect of choice or use of sampling as opposed to nil usage of.

Department of Business Administration had the highest proportion of projects utilising sampling, and Management Science had the least.

Of those in which sampling was used, Table 3 on page 32 shows how probability versus non-probability sampling was applied.

TABLE 3

Usage of Probability Sampling

Type	A	%	M	%	B	%	C	%
Prob. sampling	6	46.1	5	100	20	58.8	31	59.6
Non-prob. sampling	7	53.9	0	0	14	41.2	21	40.4
Total	13	100	5	100	34	100	52	100

Calculated $X^2 = 4.633$ $X^2c = 5.991$ at 2df.

If a project used both probability and non-probability sampling, then it was assumed to be two projects, viz. one in each of the two categories.

There is no difference across the three departments in respect of choice of use of probability versus non-probability given that sampling has been used.

Of the times that probability sampling has been used, the frequencies in respect of simple random sample(SRS) as opposed to systematic sampling is as follows(Table 4 on page 33):

TABLE 4

Usage of SRS Versus Systematic Samples

Type	A	%	M	%	B	%	C	%
SRS	6	100	5	100	15	68.2	26	78.8
Systematic	0	0	0	0	7	31.8	7	21.2
Total	6	100	5	100	22	100	33	100

Calculated $X^2 = 3.486$ $X^2c = 5.991$ at 2df.

The projects(2) that used both SRS and Systematic samples were given full weight in each of the two categories.

It can be concluded that evidence lacks to imply that differences exist across the three departments so far as choosing or using SRS, systematic samples, once probability samples have been settled on.

A similar analysis in respect of non-probability samples yields: (Table 5 overleaf)

TABLE 5

Distribution of Convenience versus Judgment Samples

Type	A	%	M	%	B	%	C	%
Convenience	3	42.9	0	-	8	50	11	47.8
Judgment	4	57.1	0	-	8	50	12	52.2
Total	7	100	0	-	16	100	23	100

Calculated $X^2 = 0$ $X^2c = 5.991$ at 2df

Some projects(2) used Convenience and Judgment samples. They received full weight in each category.

No sufficient evidence is available to suggest differences exist between the two departments that used non-probability samples in respect of usage of judgment versus convenience samples [Quota samples were not employed at all].

4.1.1 Data type:

The distribution in respect of choice of, or usage of secondary and primary [illegible] is as follows: (Table 6 on page 35)

TABLE 6

Usage of Data Types

Data Type	A	%	M	%	B	%	C	%
Secondary	14	48.3	21	33.3	16	72.7	51	44.7
Primary	15	51.7	42	66.7	6	27.3	63	55.3
Total	29	100	63	100	22	100	114	100

Calculated X^2 = 9.889 X^2_c = 5.991 at 2df

Again the total number of projects exceeds 85 since some used the two types of data and received full credit in each.

The null hypothesis of no differences across the three departments in respect of usage of either secondary or primary data is rejected.

In the instances that primary data was used, only in one case was it collected through observation, and even in that in conjunction with secondary data.

The distribution for the primary data(surveys) collection instrument(Questionnaire) administration is as follows: (Table 7 next page)

TABLE 7

Questionnaire Administration Methods

Method	A	%	B	%	M	%	C	%
Mail	12	66.7	23	43.4	0	0	35	46
Personal	6	33.3	30	56.6	5	100	41	54
Interview								
Total	18	100	53	100	5	100	76	100

Calculated $X^2 = 7.236$ $X^2_c = 5.991$ at 2df

There were instances of mail and Personal interview being used in the same project.

The null hypothesis of no differences across the three departments in respect of method of Questionnaire administration is rejected. It is interesting to note that in no instance did a Management Science student administer his questionnaire by the mail method.

4.1.2 Data analysis techniques:

The projects were classified as to those that used rigorous statistical techniques versus those that did not. [Rigorous is operationally defined in this study to exclude simple averages, percentages, proportions.]

The results were as follows:

TABLE 8

Statistical Techniques Usage

	A	%	B	%	M	%	C	%
Used	13	52	11	25	5	31.2	29	34.1
Did not use	12	48	33	75	11	68.8	56	65.9
Total	25	100	44	100	16	100	85	100

Calculated $X^2 = 4.503$ $X^2c = 5.991$ at 2df

Thus the null hypothesis of no differences across the three departments in respect of the above dimension is not rejected. No evidence, therefore, exists to imply or suggest that students in one or another department uses more statistical analysis than the others.

A glance at the summarised data showed that the statistical techniques seemed to have been used in the later years. To test whether this, the time span covered by the projects was divided into three, viz: 1981-1983;1984-1986 and 1987-1988. The distribution according to this time spans was as follows:

TABLE 9

Distribution of Usage of Statistical Techniques across Time.

	1981/2	%	1983-6	%	1987/8	%	C	%
Used	3	14.3	11	29.7	15	55.6	29	34.1
Did not use	18	85.7	26	70.3	12	44.4	56	65.9
Total	21	100	37	100	27	100	85	100

Calculated X^2 = 9.903 X^2c = 5.991 at 2df

Hence the null hypothesis of no differences across the three time spans is rejected. Which implies that the original trend noti[illegible] of an apparent increase, over time, of us[illegible]f statistical techniques has not been contradicted.

4.1.3 Use of computers:

The projects were classified according to whether they utilised the computer (mainframe or Personal computer) as shown in Table 10 below.

TABLE 10

Usage of Computers in the Projects.

	A	%	B	%	M	%	C	%
Used Computer	4	16	4	9.1	8	50	16	18.8
Did not use	21	84	40	90.9	8	50	69	81.2
Total	25	100	44	100	16	100	85	100

Calculated X^2 = 12.951 X^2c = 5.991 at 2df

Thus the null hypothesis of no differences across the departments in respect of use of computer is rejected.

The use of computers in the projects was then analysed with respect to time. The result of this analysis are shown in Table 11 on page 40.

TABLE 11

Distribution of Computer Usage across Time.

	1981/2	%	1983-6	%	1987/8	%	C	%
Used	5	23.8	3	8.1	8	29.6	16	18.8
Did not use	16	71.2	34	91.9	19	70.4	69	81.2
Total	21	100	37	100	27	100	85	100

Calculated X^2 = 5.337 X^2_c = 5.991 at 2df

The null hypothesis of no differences in the three time spans is not rejected.

4.2 Citation Styles

In the summary statistics Tables, the various departments, i.e. Business Administration, Accounting, and Management Science are represented in rows 1, 2, 3, by B, A, M respectively (as earlier defined). The combination of the three departments is in row 4 (depicted as C). Standard deviation is abbreviated to 'Deviation' and department to 'D'.

For each variable, an analysis of variance (ANOVA) was carried out to test whether the averages across the three departments are the same or not.

With respect to Project lengths, the following are the summary statistics and ANOVA results (Table 12).

TABLE 12

Project Lengths

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	93.1136	29.7307	44	177	133
A	25	82.28	34.1352	36	167	131
M	16	73.8125	23.7521	35	118	83
C	85	86.2941	30.7404	35	177	142

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	4941.7377	2	2470.8689	2.7219557	.0717
	4941.7377	2	2470.8689	2.7219557	.0717
RESIDUAL	74435.909	82	907.75499		
TOTAL (CORR.)	79377.647	84			

From the Table, it is evident that projects in the Business Administration department are on average longer than the ones from the other ones. Also ones from the Management Science department are shortest and are least dispersed.

Nevertheless, at 95% level of confidence there is no evidence to indicate that the projects from the three departments are of different average lengths [PROB(>F) is greater than 5%].

In respect of citations from journals, below are the results:

TABLE 13

Citations from Journals

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	18.4773	18.5127	0	75	75
A	25	20.84	19.8823	1	90	89
M	16	13.4375	14.7376	0	59	59
C	85	18.2235	18.2648	0	90	90

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	540.47817	2	270.23908	.8063235	.4500
	540.47817	2	270.23908	.8063235	.4500
RESIDUAL	27482.275	82	335.14969		
TOTAL (CORR.)	28022.753	84			

Projects from the Management Science department had the lowest average of citations from journals and also the lowest spread of the same. Accounting department projects had the highest average and spread of citations from journals.

It cannot be concluded that the average citations from journals per project from the three departments are not the same (at 95% level of confidence).

For citations from books, the following was discerned:

TABLE 14

Citations from Books

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	36.9091	36.8667	3	148	145
A	25	23.04	14.901	5	62	57
M	16	15.5	13.2066	2	42	40
C	85	28.8	29.4759	2	148	146

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	6553.0036	2	3276.5018	4.0445405	.0211
	6553.0036	2	3276.5018	4.0445405	.0211
RESIDUAL	66428.596	82	810.10483		
TOTAL (CORR.)	72981.600	84			

The average number of citations from books in the Management Science department is smallest and so is the spread. Business Administration department projects had the highest average number of citations from books.

The ANOVA results show that the average number of citations from books in the three departments are different (at 95% level of confidence).

Citations from sources other than books or journals yielded:

TABLE 15

Citations from Sources other than Books or Journals

a). Summary statistics

D	SIZE	AVERAGE	DEVIATIO	MINIMUM	MAXIMUM	RANGE
B	44	26.0455	24.4035	0	92	92
A	25	18	22.8491	0	91	91
M	16	6.75	6.14817	0	22	22
C	85	20.0471	23.6836	0	92	92

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	4516.9027	2	2258.4513	4.7847421	.0108
	4516.9027	2	2258.4513	4.7847421	.0108
RESIDUAL	38704.909	82	472.01109		
TOTAL (CORR.)	43221.812	84			

The average in the department of Management Science was very low in comparison to the other departments. The spread in this department was also equally low. Each of the above two variables, for the Management Science department, happens to be less than half of the combined value for the three departments.

The ANOVA did indicate that the averages from the three departments are actually different (at 95% level of confidence).

The total citations from the three sources, i.e. journals, books, and sources other than journal or books gave:

TABLE 16

Total Citations

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	81.4318	48.2823	10	193	183
A	25	61.88	30.5605	22	132	110
M	16	35.625	21.5526	8	82	74
C	85	67.0588	42.9829	8	193	185

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	25569.520	2	12784.760	8.0876761	.0006
	25569.520	2	12784.760	8.0876761	.0006
RESIDUAL	129623.19	82	1580.7706		
TOTAL (CORR.)	155192.7	84			

The average spread of total citations in the department of Management Science is lowest among the three departments. Business Administration department had the highest average and spread in respect of totals of citations.

At the 95% level of confidence, it may be concluded that the average total citations in the three departments is not the same.

4.2.1 Density of Citations:

Xhignesse and Osgood[1967:782] cited by Mcrae(1974:81) states that "density of citation is perhaps the best single index of a journals scholarliness. In the sense that its authors depend more or less heavily upon their knowledge of the work of others."

Following is a presentation of the analysis in respect of citations density.

Journals:

(Table 22 overleaf).

TABLE 17

Density of Citation from Journals

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	0.197867	0.179893	0	0.675676	0.675676
A	25	0.284043	0.264688	5.98802E-3	1.02273	1.01674
M	16	0.176595	0.172103	0	0.662921	0.662921
C	85	0.219209	0.209064	0	1.02273	1.02273

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	.1541812	2	.0770906	1.7972577	.1722
	.1541812	2	.0770906	1.7972577	.1722
RESIDUAL	3.5172642	82	.0428935		
TOTAL (CORR.)	3.6714454	84			

Department of Management Science had the lowest average density and department of Accounting had the highest. The spread, as depicted by standard deviation and range, was also in the same order, i.e. Management Science least and Accounting most.

Nevertheless, there is not sufficient evidence (at 95% level of confidence) to show that the averages of density of citation from the three departments are different.

Books:

(Table 18 on page 48)

TABLE 18

Density of Citation from Books

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	0.388446	0.341745	0.0234375	1.34545	1.32202
A	25	0.321188	0.217591	0.033557	0.854167	0.82061
M	16	0.223356	0.17951	0.0235294	0.5	0.476471
C	85	0.337589	0.288075	0.0234375	1.34545	1.32202

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	.3293167	2	.1646584	2.0329385	.1375
	.3293167	2	.1646584	2.0329385	.1375
RESIDUAL	6.6416111	82	.0809953		
TOTAL (CORR.)	6.9709278	84			

Management Science department had the lowest of both the average and the spread of density of citation from books. Business Administration department had the highest of both of these variables.

At the 95% level of confidence, sufficient evidence lacks to show that the average density of citation from books in the three departments is different.

Other sources:

(Table 19 on next page)

TABLE 19

Density of Citation from Sources other than Books or Journals

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	0.273854	0.223582	0	0.988636	0.988636
A	25	0.188441	0.158881	0	0.610738	0.610738
M	16	0.0934055	0.0752937	0	0.22449	0.22449
C	85	0.214766	0.196608	0	0.988636	0.988636

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	.4066009	2	.2033004	5.8691452	.0041
	.4066009	2	.2033004	5.8691452	.0041
RESIDUAL	2.8403857	82	.0346389		
TOTAL (CORR.)	3.2469866	84			

Business Administration department had the highest of both the average and the spread of density of citation from sources other than journals or books. Department of Management Science had the lowest of both of these variables.

At the 95% level of confidence, evidence shows that the average density of citation from sources other than journals or books is different across the three departments.

Totals of citations(densities):

TABLE 20

Density of total Citations

a). Summary statistics

D	SIZE	AVERAGE	DEVIATION	MINIMUM	MAXIMUM	RANGE
B	44	0.860168	0.441324	0.138889	1.91209	1.7732
A	25	0.793671	0.386028	0.335329	2.10417	1.76884
M	16	0.492081	0.232149	0.0851064	0.921348	0.836242
C	85	0.771323	0.413568	0.0851064	2.10417	2.01906

b). ANOVA

SOURCE OF VARIATION	SUM OF SQUARES	D.F.	MEAN SQUARE	F-RATIO	PROB(>F)
MAIN EFFECTS	1.6074156	2	.8037078	5.1649806	.0077
	1.6074156	2	.8037078	5.1649806	.0077
RESIDUAL	12.759785	82	.1556071		
TOTAL (CORR.)	14.367200	84			

Management Science department had the lowest of both the average and the spread of density of total citations. Business Administration department had the highest of both of these variables.

At the 95% level of confidence, evidence shows that the average density of total citations is different across the three departments.

Table 21 on page 51 shows how the projects were distributed in respect of citation location:

TABLE 21

Citation Location

Location	A	%	B	%	M	%	C	%
Footnotes	20	68	13	72.2	36	72	69	71.1
Embedded	7	24.1	4	22.2	10	20	21	21.7
End of Paper /Chapter(s)	2	6.9	1	5.6	4	8	7	7.2
Total	29	100	18	100	50	100	97	100

Calculated X^2 = 0.334 X^2_c = 9.488 at 4df

Some projects mixed two locations, and were given full credit in each instance.

It may be concluded that there is no sufficient evidence to imply that differences exist across the three departments in respect of location of citations.

4.3 Subject Areas of the Management Projects

The projects were classified into the various (one, two, or three) subject areas they covered. These formed three fields in the designed computer database.

Of the 85 Projects dealt with and for each selecting the major subject area, the distribution was as follows:

TABLE 22

Distribution of Subject Area

Subject Area	Number	%
1. Accounting	7	8.2
2. Auditing	4	4.7
3. Banking	-	
4. Computing Science	-	
5. Education	-	
6. Finance	14	16.5
7. General Management	24	28.2
8. Insurance	6	7.1
10. Marketing	13	15.3
11. Operations Research	15	17.6
12. Statistics	-	
13. Taxation	1	1.2
14. Librarianship	1	1.2
Total	85	100

A sample of the database output is given in Appendix 2 on page 61.

SECTION 5

CONCLUSION

5.1 Conclusions.

The project reports across the three departments were not homogeneous in respect of choice of either exploratory or conclusive research design; sampling versus no sampling; secondary verses primary data; mail versus personal interview method of questionnaire administration; using versus not using computer.

The projects were also not homogeneous in respect of average number of citations from books and from sources other than books or journals, average total citations, average density of citations from sources other than books or journals, average density of total citations.

It is thus apparent that the project reports emanating from the three departments are different, at least in respect of aforementioned dimensions. Because of time constraints it was not possible to investigate the reasons underlying or causing these differences.

Nevertheless, the projects were homogeneous in respect of choice of probability versus non-probability sampling; simple random versus systematic sampling; convenience versus judgment samples; statistical (rigorous) versus non-statistical data analysis techniques. They were also homogeneous in respect of average lengths(page numbers); average number of citations from journals; average density of citations from journals, books; location of citations.

To reduce the disparity in the projects, especially in such dimensions as length, citations(total number and density), the researcher suggests that the Faculty formulate standards. These guidelines would also be useful in grading the research project reports.

Whereas disparity in some variables is not in itself undesirable, for example project lengths, type of data (primary or secondary), in others (for example citations density), some harmony is desirable.

In respect of the second objective, the categorisation into subject areas was done and the database designed.

5.2 Limitations

In deducing the major subject area of each project, a lot of personaljudgment was used. Clearly this implies that a different researcher may have come up with an entirely different distribution. Some other area where classification is not necessarily unique is in respect of research design.

The number words per page is not constant and hence citations density is only a rough indicator of the true situation.

5.3 Some Recommendations for Future Research

In the course of this study the reseacher discerned areas which would need further research. These include:

a). Age of references used in the projects: This can help illumine whether the projects make use or otherwise of recent works.

b). Citational analysis in respect of subject areas of the citations: this may shed light on what subject areas the projects draw most from, for example do projects in Business Administration department cite materials in Accounting, Auditing,

General Management, Philosophy. It basically involves determining the subject areas of materials cited.

c). Styles of bibliography: This would involve determining whether the references are subdivided into classifications such as those emanating from books, journals, reports, and miscellaneous sources.

The database can also be extended to include the Independent and Term papers done in the Faculty.

APPENDIX 1

Data collection form

Number.....

Year.....

Author.....-

.....

Department.....-

.....

Title.....-

.....-

.....-

.....-

.....

Subject area:

Major.....

Minor1.....

Minor2.....

Research Methodology:

Research design:

Exploratory .....

Case study ....

Statistical .....

Experimental .....

Sampling design:

Probability

Simple Random Sample .....

Systematic Sample .....

Non-probability

Convenience .....

Judgement .....

Quota .....

Data type:

Secondary .....

Primary: .....

Surveys .....

Observation .....

Experimentation .....

Data collection instrument(Questionnaire only) administration:

Telephone .....

Mail .....

Personal interview .....

Data analysis:

Statistical(Yes/No) if Yes, technique(s) used

.....

.....

.....

Used computer (Yes/No) if Yes, package(s) used.....

.....

Length of the Project:

Number of pages .....

Citations:

	Tallies	
Journals	Books	Others

Total ....

Grand Total of Citations .....

Type of citations:

Footnotes .....

Embedded .....

At end of Paper .....

Mixture of above .....

APPENDIX 2

Sample page of database designed.

Page No. 1
06/21/89

Database of M.B.A. Projects

YEAR	NAME OF RESEARCHER	PROJECT TITLE	D	SUBJECT1	SUBJECT2	SUBJECT3
1981	Peter A. Arap Cheserui	A study of the Marketing of Agricultural products by Roadside traders(Hawkers) in Nairobi.	B	Marketing		
1981	Duran O. Mudhune	The impact of Kenya Railways' Supervisors Managerial skills.	B	General Management		
1981	Julius K.M. Tanui.s Rotich	An application of a transportation model to the Kenya Breweries Ltd.distribution system.	M	Operations Research		
1981	Peter Owoko K'obonyo	The operation of trade unions in Kenya: A study of the Railway African Union(Kenya): 1945-1975.	B	General Management		
1981	Kinandu Muraguu	A survey of the need and scope for independent audit of management by Certified Public Accountants in Kenya.	A	Auditing	Accounting	General Management
1981	Atagi Byaruhanga J. M.	Trade union organisations in Uganda: A study of the national organization of trade unions.	B	General Management		
1981	Vincent Otunga Kimosure	Accounting for the subdivision and distribution of land by limited liability companies in Kenya.	A	Accounting	General Management	
1981	Mungai Kamunge Gikuri	The performance of Kenya Breweries Ltd. Tusker Premium Beer since inception: "A marketing and financial analys	B	Marketing	Finance	
1982	Wangai J. G. Waane	The Relationship existing between the Kenyan Practising Accountant and his small Business Client.	A	Accounting	General Management	Auditing
1982	Sunita Srivastava	Provision of-Recreational facilities by the Nairobi National Park.	B	General Management		
1982	Abainesh Mitiku	A study of selected dimensions of Management of Industrial public enterprises in Ethiopia.	B	General Management		
1982	Lazaro Akunga Kisanga	A study of merchantile credit policies in Nairobi.	A	Finance	General Management	
1982	Agnes N. Ochumbo	An analysis of selected amendments in the income tax act in Kenya in the light of tax efficiency criterion of	A	Taxation		
1982	Isaac Mwangi Wapure	Location of additional depots of Nairobi City Councils' Water Department.	M	Operations Research	General Management	
1982	Joseph Budulwa Kayongo	Managing a project by network analysis-A case for a UNIDO Management Accountancy Project(Uganda).	M	Operations Research	General Management	
1982	Veena R. Gupta	Scheduling and control of transport, labour force and material in Nairobi City Council's water Department.	A	Operations Research	General Management	
1982	Chege Jonathan Maina	The Role of a Practising Accountant in Estate planning in Kenya.	A	Accounting	General Management	Auditing
1982	Douglas Noah Odette	Management consultancy and the transfer of management technology in Kenya.	B	General Management	Auditing	Accounting

Key:

D - Department

A - Department of Accounting

B - Department of Business Administration

M - Department of Management Science

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