

AN EVALUATION OF READERS' SERVICES AT THE UNIVERSITY OF SCIENCE AND TECHNOLOGY LIBRARY - KUMASI, GHANA.

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ABSTRACT

The U.S.T. Library since its inception, has remained the best agency within the University for collecting and organising knowledge for effective use and continues to provide important services and facilities to support the University to meet her noble objectives.

The problem is posed as to whether it is effectively and efficiently fulfilling its educational objectives. This study has therefore, been carried out to determine the extent to which the Library meets demands placed on it by its readers.

Using data obtained through the client-centred method, the study evaluated the resources, services, facilities and the overall level of performance of the Library.

It is revealed that whereas the Library's own total collections are inadequate to meet demands, its resort to co-operative activities immensely helps it to mitigate this problem.

It is also revealed that physical facilities are inadequate and that the provision of such facilities for learning and study are unsatisfactory. Its level of performance is however found to be satisfactory.

The study concludes by recommending measures which would enhance the effective use of the Library and its collections as well as the performance level of the Library.

Data for the study was collected in the 1988/89 academic session. Observations, analysis of data and the write up also took two academic sessions.

The study is divided into three parts. Part I comprises the historical background, readers' services at the U.S.T. Library, type of evaluation, reasons for library evaluation, methodology for the evaluation, goals and objectives, what is to be measured and the research techniques.

Part II deals with the evaluation of the U.S.T. Library, whilst the Part III comprises the observations, conclusions and recommendations.

KEYWORDS: Evaluation, Readers' Services, University of Science and Technology Library, Research Techniques.

HISTORICAL BACKGROUND

The U.S.T. Library system comprises the Main Library and the libraries of the various faculties, departments, Centres and Institutes. This study is centred on the Main Library.

The Library has had a chequered history. Its birth dates back to 1951. With the promulgation of the College of Technology, Science and Arts Ordinance No. 19 of 1951 the Teacher Training College at Achimota, Accra, was moved to Kumasi and its accompanying library formed the nucleus of the present Library at U.S.T. [1].

Initially, the Library was housed in temporary prefabricated buildings at the Biological Sciences Department. The seating capacity was 135 readers. It had a modest staff made up of a Librarian, Chief Library Assistant and five other assistants. The Bliss Classification with modifications was in use. There was also an author and a classified catalogue.

In April 1961 the Library moved from the temporary building to the present permanent site. The building was designed to accommodate 100,000 volumes and to seat about 250 readers. The U.S.T. Library now serves nine faculties and other research centres. These are the Faculty of Social Sciences, School of Engineering, Faculty of Environmental and Development Studies, Faculty of Agriculture, Faculty of Pharmacy, the School of Medical Sciences (SMS), Faculty of Science, College of Art, and the Institute of Renewable and natural resources. The Centres are the Land Administration Research Centre and the Technology Consultancy Centre (T.C.C.)

The Library as of now has a stock of 154,000 volumes and is experiencing serious accommodation squeeze. It has reached the saturation point as far as space for books and readers are concerned. This problem which has always been the central theme of discussion in the Library's annual reports for the past years is still with us and the situation gets worse each succeeding year. Makeshift arrangements have been made to ease congestion, but these have been done at the expense of spaces meant for readers. During peak periods, the Library is filled to capacity and many readers who are unable to find places to sit are compelled either to lean on shelves to read or go back. This situation obviously brought in the question of further extension to the Library. This is underway in earnest.



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READERS' SERVICES AT THE U.S.T. LIBRARY

Readers' services in this context is used to mean those services offered directly to users of the U.S.T. Library, and include the promotion of and assistance to reading, study and research. These services are rendered by the readers' services department of the Library. The two main areas of service operations assigned this responsibility are the circulation and the reference units. It is not easy to define what a readers' services department is. However, it is a multi-purpose unit which performs functions such as circulation, reference and information, orientation/user instruction, and other secondary services such as photocopying, inter-library lending, display of books and related materials, and the periodic issuing out of publications that highlight the activities of the Library. These services facilitate the use of bibliographic materials. The readers' services department also provides the resources and facilities needed to support the instructional and research needs of the University. The department, therefore, literally sells the Library and advertises the calibre of work done therein.

As an auxiliary centre of the University's instructional and research programmes, it is expected that the Library would provide services which adequately meet the needs and demands of users and provided by competent personnel and founded on comprehensive stock. The implication of this is quite obvious. The stock should be properly and effectively organized to provide easy access to its user community. By so doing, it would be maximizing exposure of readers to materials at the same time. However, an efficient implementation of readers' services programme is only possible with the availability of certain pre-requisites. These include:

- i. the availability of a building which is spacious, functional and specifically designed for library purposes;
- ii. adequate funding to meet the purchasing of materials mostly books and periodicals;
- iii. provision of comprehensive collection carefully selected, acquired and organized in relation to the academic needs and aims of the University;
- iv. availability of personnel adequate in size, trained academically, professionally and competent to carry out the total library programme successfully.

Moore (1989) has rightly pointed out that ".....it is unreasonable to expect to achieve a high level of performance if only minimal levels of resources are provided for the purpose"[2]. It is in the spirit of attempting to find out the level of funding of the U.S.T. Library, and most importantly, how well it is performing, that this study is carried out. Therefore, the specific aims of the study are as follows:

- i. to evaluate the adequacy of the physical facilities for the proper and effective organization of the library resources for its purposeful use by the readers;

- ii. to evaluate the various collections of the library so as to determine their adequacy and availability;
- iii. to examine the provision of readers' services;
- iv. to examine the budgetary allocation to the Library, as well as its staffing position.
- v. in the light of the findings, to determine the level of satisfaction of the provision of information, physical facilities and resources for study/learning, teaching and research by the readers' services unit of the U.S.T. Library, and invariably determine the extent of user satisfaction or dissatisfaction with the services.
- iv. to recommend ways in which services, facilities and resources might be improved and effectively utilized.

The study is therefore an internal self-diagnosis of library services, resources and activities [3].

TYPE OF EVALUATION

This is a study which takes the form of an evaluation research.

This type of research basically evaluates relative effectiveness in terms of standards, goals and objectives.

The process of evaluation research encompasses the following broad steps. The study would therefore:

- i. determine what is to be evaluated and the reasons for it;
- ii. establish the desired level of performance of the object of the evaluation with reference to its standards, goals and objectives;
- iii. select appropriate investigative techniques and prepare a suitable scale of instrument to measure level(s) of performance;
- iv. measure or test subjects (objects) to determine actual level(s) of performance;
- v. determine the extent to which the goals were achieved [4].

Within the context of this study, it is an attempt to measure the operations of the U.S.T. Library in terms of the service objectives of its readers' services and to determine its satisfactoriness in satisfying user demands. This involves an evaluation of the U.S.T. Library.

WHAT IS LIBRARY EVALUATION

Libraries since their inception have been the subject of some form of examination by library administrators, users and staff. Therefore, the concept of university library evaluation is by no means new.

Library evaluation may be described as one means by which one may critically examine a library and the services it offers. According to McDiarmid, Library evaluation is a careful, critical and factual analysis of library conditions [5]. The critical examination of a library or factual analysis of the conditions, leads to one common objective - the identification of strengths and weaknesses and possible solutions for the latter. This renders library evaluation as a specialized type of investigation whose goal is to improve library service. It is obvious that the library user comes under such scrutiny too.

Line (1982) has noted that library evaluation "..... is one of the means by which society keeps itself informed, a way of bringing under control situations of increasing size and complexity of obtaining perspectives and standards of comparison" [6].

A synthesis of the various definitions suggest that library evaluation is "a systematic collection of data concerning libraries, their activities, operations, staff, use and users, at a given time or over a given period" [7].

Reasons for Library Evaluation

Human beings always either consciously or unconsciously evaluate any system in which energy or money is expended in an attempt to find out its worth or benefits. However, as systems become more and more complex and as organisations are forced to monitor their investments in information systems more closely, the need arises for a way to assess their costs, benefits and effectiveness. One of such information systems which has been under constant evaluation is the library. This is not to say that the upsurge of this interest in evaluation is an isolated phenomenon restricted to the field of libraries. As pointed out by Stecher (1975), "it is in fact in close parallel with similar trends in other service-oriented activities and enterprises throughout society" [8].

Various reasons have been offered to justify the need for libraries to measure their performance. For example, librarians have become aware of the need to evaluate their libraries with these objectives in mind.

First to determine:

- i. if it is following the path chalked for itself,
- ii. whether there has been any change in performance for a given period.
- iii. if so, whether the change is in the desired direction, and
- iv. if so, to what extent [9].

Second, to develop the most efficient and effective systems and to provide the systems which are of most value to the users.

Besides these intrinsic values there is also the pressure from funding agencies for libraries to justify their

funding. The pressure has come as a result of the rise in demand for information and access to publications supported by the United Nations as one of the basic human rights; and the rising cost of access to information as phenomenon of modernity and development.

Ford (1989) also offered three possible reasons with library funding emerging as the strongest point. According to him,

"It is necessary to measure the performance of libraries first, because a library almost always gets its funds from outside sources; second, because many activities can take place in libraries and resources have to be allocated to reflect priorities; third, because there may be several ways of doing the same job in a library" [10].

The fact is that libraries, besides their preservation role also perform the essential function of providing access to recorded knowledge and warrant investment of public funds, and therefore require public accountability.

Similarly, the Vice-Chancellor of the University of Western Australia, Professor Robert Smith, has argued strongly, that, the incipient stampede academic libraries are engaged in, in the struggle for a place on budget priorities and the rising cost of libraries provide the need for justification for their funding, and hence the need to evaluate them to determine how well they are performing [11].

This very intention was clearly brought out by Hansberg et al [12] and Ralli [13]. This is to say that, "for optimal allocations of limited funds, it is necessary for libraries to develop measures of output" [14] to justify their existence.

Orr (1973) contends that the pressure to measure performances of libraries:

".... are generated by many factors including the success of these tools in other fields and their adoption by the organizations supporting libraries..." [15].

From the foregoing discussion it comes out succinctly that evaluation is essential to the accountable library for three obvious reasons. Firstly, to determine how well it is performing and to justify its funding. Second, without it, it would be difficult to make any positive statements as to what the library has achieved. Thirdly, it becomes inextricably difficult to modify on-going programmes in any other sensible or systematic way.

This clearly underscores Hemon's contention that library evaluation encourages library management to examine their priorities and the extent of their commitment to the provision of services that meet the information needs of users [16]. This is further echoed by Moore (1983) who states that:

"Without any evaluation or performance measurement there is a tendency for organizations to become choked with services and operations which have outlived their usefulness, which never performed well as was hoped, or which consume resources which could be used to greater effect elsewhere" [17].

In other words, it enables organizations to remain relevant to the needs of their users.

THE U.S.T. LIBRARY LOOKS AT ITSELF

The readers' services department of the U.S.T. Library has been a constant recipient of compliments, suggestions and complaints from the user community. Particularly, doubts have been raised over the Library's level of performance and hence questions are often posed as to whether it is effectively and efficiently fulfilling its educational objectives - whether it encourages effective and efficient use of its resources through adequate provision of facilities, equipment and services; and whether it efficiently instructs readers in the use of the Library and its materials. In the main, the Library is being asked with increasing frequency to show how it contributes to support its community. Thus, the call is on the library to defend its share of public funding. This is a manifestation of accountability. To this extent,

"the pressures to undertake such a study result from a variety of administrative and societal forces calling for increased effectiveness, accountability, and broader bases and services, all within relatively static budgetary constraints" [18].

This concern is a healthy sign because it shows mounting interest in the progress of the Library and therefore the criticism, however intended is real and must be taken in good faith, as it relates to the reason for setting up the Library in the first place. Secondly, it is the view of this writer that facilities and services offered by a particular library affect the users most because they depend on it to facilitate their various programmes. Thirdly, looking at the criticism there emerges some kind of validity in that, the Library was planned with 250 readers in mind with room for 100,000 volumes. But unfortunately, the present population of its users and the growth of the Library's resources have outstripped these figures and strains are being exerted on the Library's facilities and services. Fourthly, the Library is in active competition with other equally important agencies in the University for its share of the limited funds, and therefore it is high time it measured its performance to justify its incessant call for more funds to replenish the fast deteriorating collections and to streamline services.

Unfortunately, these comments have formed the basis for passive appraisal. However, there is a danger in attaching credence to such random observations. As of now, the Library has no effective way of determining whether or not the comments received are representative of the entire readership. This underscores the fact that, "performance measurement should be an essential part of every organisation" [19]. In the absence of this, occurrences in the library are subjected to various shades of interpretations. This seems to be what is happening at the U.S.T. Library. This must not come as a surprise, because naturally, people criticize and complain more frequently than give compliments. It is also possible that some areas of the Library's operations

that require immediate attention and improvement could be overlooked completely because no one happens to comment on them while other areas could be susceptible to comments that they would receive continual and perhaps unwarranted attention. To this end, there is the probability that this type of appraisal is not representative but biased and perhaps haphazard in areas of coverage.

It is also interesting to note that the U.S.T. Library since its inception has never evaluated or measured its performance. It is impossible to ascertain the extent to which it is meeting its objectives without any performance assessment.

On this note, it is appropriate and pertinent to evaluate such compliments, suggestions and complaints in an active and systematic manner. This study is therefore an objective counter-weight to expressed shades of opinion.

METHODOLOGY FOR THE EVALUATION

Vickery [20] and Lancaster [21] have prescribed three possible levels of library evaluation. These include the measurement of effectiveness, cost-effectiveness and cost-benefit.

This study utilizes the first level of measurement which is the measurement of effectiveness. According to Lancaster, a library's effectiveness is measured in terms of how well a service satisfies the demands placed upon it by its users. Saracenic *et al* [22] consider it to be how well a library does what is intended. Ralli (1987) on the other hand argues that "effectiveness essentially measures how we are going, to what extent we are meeting our goals and objectives" [23].

In this study to evaluate the effectiveness of readers' services of the U.S.T. Library, an attempt is being made to measure the degree to which service objectives are being achieved. Particularly, the extent to which the Library satisfies the demands placed upon it by its users, since this is the ultimate objective of the services rendered. The demands to be satisfied in this context relate to the satisfactory provision of physical facilities, information, services and resources for reading and study, teaching and research. What is involved here is a measurement of performance. This is because the measurement of a library's service objectives is a measurement of performance.

As of now, there are two main methods for the evaluation of a library's effectiveness or the measurement of its performance. These are the objective and the subjective methods. In the former approach, performance measurement of a library adopts the tools of the management sciences. In this case, the evaluation of a library's effectiveness is measured quantitatively. The subjective method or approach, on the other hand, primarily depends on users' opinions or attitudes to measure the effectiveness of a library. Normally, such opinions or attitudes are ascertained by methods used in marketing research, which are basically the use of

questionnaires or interviews or both. As a result, the subjective approach takes the user as the unit of analysis. The assumption here is that, these user evaluations are valid indicators of library performance. This view is corroborated by Stecher (1975) who contends that the subjective approach "... has in fact found methodological application in a number of studies" [24].

It is therefore safe to conclude at this point, that, in determining the degree of success with which a library performs, the chief indicator, the library user, is the most logical source of an answer. This is well noted by Vickery and Vickery (1987) that, "in the social process of information transfer, ... the ultimate evaluation must be from the viewpoint of the potential recipients..." [25] User opinions therefore, remains a valid and potent measure of user satisfaction. This study, however, adopts the use of the subjective method as its major tool for the evaluation. The use of this method implies that users will be required to state their level of satisfaction on questionnaires distributed. The construct-user satisfaction is therefore, users' self-reported degree of satisfaction with library services [26]. In using the construct-user satisfaction to assess the performance of a library, it is assumed that the higher the proportion of satisfied to dissatisfied users within a selected sample, the higher the presumed level of performance of the library.

In the U.S.T. setting, a sample of three segments of users are to give a verdict from a three scale level of performance; very satisfactory, satisfactory and unsatisfactory. The assumption then, is that the level of performance the majority in each of the three segments claims to enjoy becomes that segment's self-reported degree of satisfaction it derives from the service, hence the performance of the Library.

What is to be Measured

This is a fundamental problem akin to all processes of library evaluation. But the problem becomes exacerbated in the measurement of effectiveness. The reason is that the measurement of effectiveness is a complex issue, particularly for social systems of which the library is one. There is a great diversity of approaches, methods and techniques, all because, "as yet, there are no universally accepted measures, measuring units, or methods for this study of library effectiveness. In part, this is because there is little agreement as to what is to be measured" [27]. It is even doubtful if consensus would be reached about measures which have the most utility and internal validity. Herson (1987) is more pessimistic about this: "... the profession cannot reach a consensus about which measures have the most utility and internal validity ..." [28]. The need therefore arises for

"... a theoretical framework which will allow the identification of major concepts and basic criteria, establish the fundamental relationships between these and provide the parameters of the problem as a whole" [29].

Fortunately, Orr [30] has provided such a conceptual framework:



Fig 1: Relations among criterion variables.

The basic and generalized model of Orr's conceptual framework is graphically depicted in Fig. 1 representing the interrelationship between criterion variables, with quality and values as preferable substitute labels for effectiveness and therefore less susceptible to terminological imprecision.

According to Orr, quality and value are measurable both directly and indirectly:

"Measures of quality and value may be characterized as direct when they are based on these ultimate criteria, and indirect when some presumably related criterion is substituted as the basis for judgement" [31].

In fact, the ideal situation, as explained by Stecher would be one in which measures are used for measuring these ultimate criteria. In practice, however, it has proved difficult if not impossible. Invariably, this implies that one would have to find things, processes, and phenomena which are measurable, and where the measures derived would be valid indicators of effectiveness and benefits. This is affordable in Orr's analysis. The arrows in the diagram represent a tendency toward increasing magnitudes. That is, an increase in input resources will normally tend to increase capability and so on until finally it is suggested that increased benefits will lead to increasing resources.

Orr explains this relationship in four propositions which express the basic dynamics of the model:

1. that, other things being equal, the capability of a service will tend to increase as the resources devoted to it increase, but not necessarily proportionately;
2. that, other things being equal, the total uses made of a service (utilization) will tend to increase as its capability increases, but not necessarily proportionately;
3. that, other things being equal, the beneficial effects realized from a service will increase as its utilization increases, but not necessarily proportionately;
4. that, other things being equal, the resources devoted to a service will increase as its beneficial effects increase, but not necessarily proportionately.

Although the model looks quite simple at a glance there is much to it than it appears. Particularly there abounds many factors which may constrain each suggested relationship. For example,

"The repeated caveat, not necessarily proportionately, implies that there is always a limit to the extent that any factor in the sentence can be increased or improved. The second caveat, other things being equal, implies that many factors may counteract each suggested relationship: extra resources may be misused, may be irrelevant ..., and fail to increase utilization; extra uses may be trivial or may divert recipients away from real needs, and thus fail to produce beneficial effects; benefits received by users may not be perceived by or judged important by funders, and so not result in extra resources" [32].

These limits and constraints show that in this real world, 'other things' are rarely equal. This however does not invalidate the logical basis of the propositions which are heavily based on assumptions. The model is therefore not worthless. Orr reminds us of the importance of these assumptions and the efficacy of the measures in his claim that:

"These measures do meet real needs and will be used until library managers become convinced that better measures are available ... only by explicating the assumptions underlying the measures now used and exploring their vulnerability to violations of the critical conditions upon which their validity depends, and doing the same for any new measures that may be considered as replacement of relative acceptability on the score of validity" [33].

But as of now, none has been done successfully. Its validity therefore holds intact.

A cursory look at the four variables in the loop shows that resources lend themselves most readily to quantification and therefore countable. Hence, it is easier to compile statistics on resources such as collection size and growth, budget and staff, *et cetera*. On the other hand, capability, beneficial effects (values) and utilization are difficult to measure directly and in the absence of satisfactory direct measures of quality and value, indirect measures have to be used instead. These indirect measures are referred to as 'proxy' measures by Vickery and Vickery.

According to Orr, measures of resources can be regarded as indicators of quality and the measures as indirect measures. This is suggested by the dotted line from quality to resources and the assumption that gives logical support to this interpretation is the first of the propositions on which the diagram is based. Similarly, measures such as the number of items circulated per number of the potential user population becomes another kind of indirect measure of quality in the absence of a satisfactory direct measure. This is also depicted by the dotted line from quality to utilization, and the underlying assumption is based on the second proposition. Utilization is also difficult to quantify directly except in libraries where service is almost completely staff-mediated, which is rare indeed. This means that it can only be measured indirectly with the most commonly employed indicators of value

which are measures of utilization, e.g. reference queries handled, bibliographies prepared, students instructed, items circulated, in-house use and pages photocopied, *et cetera*. These indirect measures of value rest on assumptions about the qualifiers in the third proposition.

From the foregoing discussion, "there is a tendency therefore to equate quality with resources and value with utilization" [34]. At this juncture, the question - what is to be measured can be answered. To evaluate the effectiveness of the U.S.T. Library's readers' services, one may measure the indicators of quality (resources) needed to render effective readers' services; and secondly, the indicators of value which are measures of utilization.

RESEARCH TECHNIQUES:

Study Population and Sample

The concept of population is basic to survey research. Busha and Harter (1980) define population as "... any set of persons or objects that possesses at least one common characteristic" [35]. Within this context, the staff and students of the U.S.T. can be said to constitute a population. This is because they share one common objective - to work for the attainment of the aims and objectives of the U.S.T. This is the population this study seeks to study, and hence it became pertinent to study the characteristics of the population.

The U.S.T. population comprises three segments: the teaching staff (Faculty), Students and the non-teaching staff. Each segment has a population of:

1. Teaching Staff	- 527
2. Students	- 3588
3. Non-Teaching Staff	- 3481
Total	<u>7596 *</u>

* These figures were obtained from the Registrars' Offices and the various Faculties in the 1988/89 academic year (see Appendix I).

However, an examination of the personal records available at the University registry shows that 2469 (71%) of the non-teaching staff are either illiterate, hold the Middle School Leaving Certificate (MSLC) or certificate below the General Certificate of Education (G.C.E.) Ordinary Level. It was decided to leave out this segment of the non-teaching staff since they are incapable of using the Library and its collections meaningfully.

This purposive sampling reduces the non-teaching staff population to 1012 (29%). The implication is that these hold certificates from the GCE Ordinary Level and above and are thus capable of using the Library and its collections. The University population at this juncture reduces to

1. Teaching Staff	- 527
2. Students	- 3588
3. Non-Teaching Staff	- 1012
	<u>5127</u>

The potential user population of the U.S.T. Library is therefore 5127.

Justification of Sample Picked

Records of registered users of the Library over the years show that between 37% -39% of the total population register with the U.S.T. Library. For instance, in the 1988/89 academic year 3,022 (39.5%) registered. Based upon this information, and coupled with financial constraint, it was decided to select a sample of about 750 (14.6%) of the potential users to be a representation of the total potential user population. The 750 therefore becomes the target population. Although this sample constitutes a homogenous population, each category differs in the pattern of use of the Library. For example, the teaching staff, mostly use it to seek information and consult materials - predominantly current journal articles and books for their teaching and research needs. Students use it for study purposes and for preparing for their examinations.

The non-teaching staff either use it to upgrade their knowledge on a particular subject, to seek information for teaching and research staff or to seek information for their own research.

The significance of the above categorization is that it would help to determine the availability, and adequacy of service delivery, facilities and resources, to the satisfaction of the different needs and tastes. It would also afford them ample opportunity to give their candid opinion about the core collections they frequently use. For this reason, an attempt was made to arrange an exact statistical sample in which each category is proportionately represented. This is to help wield control over the random fall of numbers. The sample population is therefore representative.

Population and Study

The study made use of systematic random sampling technique to select the sample of 750 (14.6%) of the potential library users in the university community. They were picked as the population of interest.

The total sample was shared among the three categories of potential users. The teaching staff which had a total of 527 potential users accounted for 10% of the sample population, students (3588) had 70% and the non-Teaching staff (1012) had 20% in that order.

The logical approach to this task was that, first the percentage of respondents in each population category was determined. The number of subjects needed in the sample was computed according to calculated percentages (Table 1). The percentage in each stratum was computed thus:

1. Teaching Staff: $527 \times 100/5127 = 10\%$
2. Students : $3588 \times 100/5127 = 70\%$
3. Non-Teaching Staff: $1012 \times 100/5127 = 20\%$

Having determined that the sample would consist of 750 respondents, the number of respondents in each

stratum (Table 1) was computed by quota sampling methods as follows:

1. Teaching Staff : $10 \times 750/100 = 75$
2. Students : $70 \times 750/100 = 525$
3. Non-teaching Staff: $20 \times 750/100 = 150$

TABLE 1: SELECTION OF SAMPLE

STATUS	NO. IN SAMPLE	PER CENT OF TOTAL
Teaching Staff	75	10.0
Students	525	70.0
Non-Teaching Staff	150	20.0
Total	750	100.0

Having now selected a sample of respondents in each stratum, it was expedient to give each stratum a faculty or work place balance since students and staff population in the various faculties and work places vary significantly. For this reason, a second attempt was made to arrange an exact statistical sample in which each category in each faculty or work place was proportionately represented.

Numbers in the sample (Table 2) were computed as follows:

For example,
School of Engineering: $99 \times 75/527 = 14$

The calculated sample intervals (Table 2) were also calculated as:

For example, School of Engineering: $99/14 = 7$

TABLE 2: TEACHING STAFF: FACULTY REPRESENTATION IN SAMPLE

FACULTY	POPULATION	NO. IN SAMPLE	CALCULATED SAMPLE INTERVAL
Social Sciences	40	5	8
Engineering	99	14	7
Pharmacy	42	6	7
Environmental & Development Studies	81	12	7
Agriculture	42	6	7
Institute of Renewable Natural Resources	38	5	8
Art	62	9	7
Science	60	9	7
Sch. of Medical Sciences	63	9	7
Total	527	75	

TABLE 3 STUDENTS: FACULTY REPRESENTATION IN SAMPLE

FACULTY	POPULATION	NO. IN SAMPLE	CALCULATED SAMPLE INTERVAL
Social Science	656	96	7
Engineering	284	41	7
Pharmacy	243	36	7
Environmental & Development Studies	330	48	7
Agriculture	313	46	7
Institute of Renewable Natural Resources	147	22	7
Art	387	56	7
Science	742	102	7
Sch. of Medical Sciences	486	71	7
TOTAL	3588	525	

Numbers in the sample (Table 3) were computed as follows:
 For example: School of Engineering $284 \times 525/3588 = 41$
 The calculated sample intervals were also calculated as:
 For Example, School of Engineering: $284/41 = 7$

TABLE 4: NON-TEACHING STAFF, WORKPLACE REPRESENTATION IN SAMPLE*

WORKPLACE	POPULATION	NO. IN SAMPLE	CALCULATED SAMPLE INTERVAL
Science and Technology	332	49	7
Social Studies	250	37	7
Central Administration	430	64	7
TOTAL	1012	150	

*The Non-Teaching Staff is spread over several departments, faculties, centres and units and for the sake of convenience, work and discipline relationship and affiliation, and the common use of the library according to the above characteristics, there is the more likelihood that they would use subject - related book and hence it was considered prudent to group them under three categories.

- i. Science and Technology: e.g. Engineering, S.M.S., Science, Agriculture, Institute of Renewable Natural Resources, the University Hospital, et cetera.
- ii. The Library, BIRD, LARC, Centre for Cultural Studies et cetera, under Social Studies.
- iii. The Registrar's Offices, Finance Office,

Transport, Manufacturing Unit et cetera, Under Central Administration.

Numbers in the sample (Table 4) were also calculated as follows:

For example, Science and Technology:

$$332 \times 150/1012 = 49$$

The calculated sample intervals were also calculated as:

For example Science and Technology: $332/49 = 7$.

The method used for the random sampling is that of systematic sampling with a random start. Thus, for each stratum e.g. students in the School of Engineering, a random number table was used to select the students from the alphabetical list, and therefore every n^{th} student was selected, where n denotes the sample interval.

The advantage is that each element or unit in the sample has an equal opportunity or chance of being selected. On the basis of this, it is possible to draw inferences for each category of the potential library user population.

CONCLUSION

The general background to the study has focused on the Library's historical background, readers' services at the U.S.T. Library, type of methodology for the evaluation, goals and objectives; what is to be measured and the research techniques.

This is to be followed by the Part II of the study, and this deals with the evaluation of the U.S.T. Library.

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APPENDIX I

I Figures for the three categories of staff were collected from the Registrars' Office and the various Faculties in November, 1988 of 1988/89 academic year. There is no doubt that the fixed time that the enumeration and data collection were done would imply that the figures obtained could not be applicable exactly to the entire period under study. The reasons are as follows:

(a) STUDENTS

A good number of the students who applied to this University for admission and were duly admitted and had registered, later left for other Universities as it is usually with freshers.

Secondly, the data was collected at a time continuing students had not had their results released, and therefore when this was made known, those who trailed in more than the required number of subjects had to be withdrawn.

Thirdly, others, though continuing students deferred their courses for one reason or the other.

In view of these there is bound to be differences between data on students at the beginning of the first semester and one taken by the end of the academic year.

(b) TEACHING STAFF

Teaching staff who resigned or retired later in the academic year could definitely affect the applicability of data collected at the beginning of the academic year.

(c) NON-TEACHING STAFF

Any differences found between the number of non-teaching staff listed at the time of data collection and at the latter part of the academic year could be explained either by staff resignations, retirement, retrenchment or recruitment.

II. Other sources of error in the figures were due to inappropriate categorization of teaching staff.

The faculties failed to distinguish between full-time lecturers, part-time lecturers, technical instructors, assistant lecturers and teaching assistants. They were all lumped together as teaching staff. The lack of proper categorization has definitely affected figures of listed permanent lecturers.

III. The above discrepancies are in actual fact rather small and hence do not affect the qualitative aspect of the study.

The interested reader can compare our figures with those issued by the Planning Unit of U.S.T.²⁶