FACTORS RESPONSIBLE FOR

COLLABORATION

IN PUBLISHED PAPERS

BY LECTURERS OF
AHMADU BELLO UNIVERSITY, ZARIA
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CERTIFICATION

This thesis entitled "Factors responsible for Collaboration and Non-collaboration in Published Papers by Lecturers of Ahmadu Bello University, Zaria", meets the regulations governing the award of the degree of Master of Library Science of Ahmadu Bello University, and is approved for its contribution to knowledge.

This thesis has been read and approved as meeting the requirements of the Department of Library and Information Science, Faculty of Education, Ahmadu Bello University, Zaria for the award of the Degree of Master of Library Science.

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DECLARATION

I hereby declare that this thesis has been written by me and that it is a record of my own research study. That it has not been accepted in any previous application for a higher degree. All sources of information used in the study are properly acknowledged by means of references.

(DAVID SULE ABDULLAHI)

(1995)

DEDICATION

This thesis is dedicated to all my four children: Gbenga. Bolaji. Bimbo. Mubo and their mother. Christiana Funmilayo for their endurance in various perspectives on account of this study.

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ABSTRACT

Factors Responsible for Collaboration in Published Papers by Lecturers of Ahmadu Bello University. Zaria.

The objectives of this study in the first place is to validate Weintranb's theoretical and hypothetical generalization that *natural scientists collaborate while the humanistic scholars* rare do: and secondly to identity the factors that are responsible for collaboration in published papers by lecturers of Ahmadu Bello University. Zaria.

Data for the investigation were obtained through the administration of questionnaire and interview on the sampled lecturers in the four major subject divisions of humanities. natural sciences. social sciences and technology.

Weintraub's hypothetical and theoretical generalisation that natural scientists collaborate while the humanistic *scholars rarely do was discovered to be true of the* respondents in this study. Some 37 (72%) respondents in the field of Natural Sciences collaborated: but in Humanities. Social Sciences and Technology. 9 (23%): 16 (21%): 8(20%) respondents collaborated respectively.

The factors that were responsible for high collaboration 37(72%) in natural sciences are as follows:

(a) That two or more minds are better than one.

(b) That the nature of their discipline made it mandatory or imperative for collaboration.

(c) *That the research grant is fairly adequate for their*

research study.

The factors that were discovered to be responsible for the low collaboration in humanities, social sciences and technology are as follows:

(a) Incompatibility with others.

(b) Unequal contribution by the team members.

(c) Passive attitudes of others.

(d) Laziness of others.

(e) Desire of some members of group to cheat.

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DEFINITION OF TERMS

Collaboration:

When two or more writers jointly produce or publish a paper in a journal.

Humanities:

The branches of learning concerned with human and relations as distinguished from the sciences especially languages. literature. philosophy. history are the examples of humanities disciplines.

Lecturers:

Refers to Ahmadu Bello University employees whose primary assignment is lecturing or teaching of students and research studies.

Natural Sciences:

Is systematized knowledge derived from observation study. and experimentation carried on in order to determine the nature or principle of what is being studied or a branch of knowledge or study especially one concerned with establishing and systematizing facts. principles. and methods as by experiments and hypotheses for example: Physics. Chemistry. Biology. Mathematics. Biochemistry. Micro-Biology. Geology. Geography and Geophysics are examples of natural science subjects.

Social Sciences:

Are the subjects concerned with the study of people and how they live together as families. tribes. communities. sociology. political science. economics are examples of social science disciplines.

Technology (represented by engineering) in this study is used synonymously as engineering which refers to the planning. designing. construction or management of machinery. roads. bridges. building. fortification of water ways are examples of technology disciplines.

Published Papers:

Are research studies that have been published in journals or serials or in book form for wide circulation.

CHAPTER ONE

INTRODUCTION

1.1. Background to the Study:

This study is in the area of bibliometrics. Bibliometrics study as it is known has many parts. some of which are citation analysis and another patterns such as a single or multiple publications. Many researchers in the area of bibliometrics have made useful discoveries and they have left lacuna to be filled by further research study. The lacuna to be filled concerns the factors or reasons that influence collaborative and non-collaborative publication in humanities. social sciences. natural sciences and technology which this research study attempts to fill.

Quite a number of writers are of the opinion that authors generally collaborate more in natural sciences than in humanities and social sciences. Weintraub (1980: 30) for instance. made an hypothetical and theoretical generalisation that scientists collaborate while humanistic scholars rarely collaborate.

A comparative study of author collaboration in scholarly published papers on Library and Information Science literature in Nigeria. India. United Kingdom and United States of America was carried out by Afolabi (1987:28). Similarly. Lawani (1980:6-8) also treated the aspect of author collaboration in his study "Collaboration and Quality of Research Productivity". Beaver and Rosen (1979:231) projected in their

study that collaboration in scholarly published paper is directly related to the development of professionalization. This is, of course, in line with Weintraub's hypothetical generalization.

Writers of scholarly published papers play key role in the *proliferation of publications: Their importance*, therefore, cannot be over-emphasised and the factors that influence their behaviour in publication both of which form the basis and foundation of knowledge are equally important.

1.2 Statement of the Problem

A search of the relevant literature revealed that no research study is known to have been carried out to document and validate the hypothetical and theoretical generalization of Weintraub that authors collaborate in scholarly published papers more in natural sciences than in humanities. Subramanyam (1983: 30-37) similarly, wrote that the degree of collaboration in scholarly published papers is higher in physical sciences than in humanities and social sciences. He did not substantiate this with facts and figures.

Secondly, no research study is known to this investigator to have been carried out as a step further to find out the factors that are responsible for this habit of writing by authors.

It is reasonable to validate Weintraub's and Subramanyam's hypothetical and theoretical generalization before the writer would proceed to find out the factors that

are actually responsible.

1.3 **Research Questions**:

This study seeks to provide answers to the following questions:

1. In which of the four major subject divisions namely: Humanities. Natural Sciences. Social Sciences and *Technology do lecturers in Ahmadu Bello University* Collaborate more?
2. What are the factors responsible for collaboration and non-collaboration of lecturers in published papers in Ahmadu Bello University. Zaria?

1.4 **The Objectives of the Study:**

1. To find out the major subject divisions out of *humanities. natural sciences. social sciences and* technology in which lecturers in Ahmadu Bello University collaborate more.
2. To identify the factors that are responsible for lecturers' behavioral pattern of writing jointly or singly in four major subject divisions of humanities. natural sciences. social scinces and technology.

With a study of this nature it might be easier for an institution to know the best way to encourage authors or lecturers. to stick to which is better. Encouragement could be by way of releasing of funds. increasing of research facilities in order to boost publication from which the socio-economic and political revolutionary wheel of progress could

be brought about.

1.5 **Basic Assumption:**

1. It is assumed that there are factors that are responsible for collaboration and non-collaboration by the lecturers in the four major subject fields of humanities. namely: Natural Sciences. Social Sciences and Technology.
2. Whatever reasons the lecturers have for collaborating and non-collaborating. it is assumed that collaborative publication is good for all subjects.

This research study covers the lecturers in the four fields of humanities. natural sciences. social sciences and technology of Ahmadu Bello University Zaria during 1991/92 period. It seeks to examine the behavioral publication patterns of the lecturers in the four subject fields mentioned above in terms of the factors that influence them to publish.

1.6 **The Significance of the Study:**

The significance of this study lies in the validation of the hypothetical and theoretical generalisation of Weintraub (1980:30) that humanistic scholars rarely collaborate whereas natural scientists do collaborate more than the humanistic scholars.

The identification of the factors responsible for collaboration and non-collaboration might be of assistance not only to the authority of Ahmadu Bello University but also to the Government and National Universities Commission (N.U.C.)in the disbursement of fund for research grant essential to

encourage authors to transform this country socially, economically, politically, and scientifically.

1.7 Scope of the Study:

This study covers the lecturers in the four fields of humanities, natural sciences, social sciences and technology of Ahmadu Bello University, Zaria during the 1991/1992 period in terms of collaboration and non-collaboration in published papers. It also covers the factors that influence the lecturers to publish jointly or singly.

It is assumed that there are factors that are responsible for collaboration and non-collaboration by the lecturers in the four major subject fields of humanities, namely, natural sciences, social sciences and technology. Whatever reasons the lecturers have for collaborating and non-collaborating, it is assumed that collaborative publication is good for all subjects.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction:

The objective of this chapter is to review the literature that deals with author collaboration in published papers.

The literature review examined the following areas: kinds of author collaboration, author collaboration as a measure of communication, productivity in relation to author collaboration quality of paper and author collaboration, visibility in relation to author collaboration, author collaboration in multilingual society, financial resources for author collaboration and summary.

2.2 Kinds of Author Collaboration:

The concept of author collaboration is developed from the study of bibliometrics for quantifying single publication vis-a-vis multiple publications. Subramanyam (1983:37) wrote on bibliometric studies of research collaboration. He identified six types of author collaboration namely: teacher-pupil collaboration, collaboration among colleagues, supervisor-assistant collaboration, research consultant collaboration, collaboration between organizations and international collaboration.

Teacher-pupil collaboration is the lecturer-student joint publication, supervisor-assistant collaboration is simply joint publication by supervisor and researcher while researcher consultant is similar to the latter.

The only difference is that consultant is a senior supervisor. Finally, collaboration between organization and international collaboration is joint publications among nationals and among institutions, firms, companies and corporations.

Subramanyam concluded through his observation that the degree of collaboration varies from one discipline to the other. According to him, collaboration is generally high in the intensely collaborative scientific and technical fields but low in the humanities.

Ament, in her study entitled "Collaboration in Adult Education, Overview", opined how collaboration could be advantageous because of information ideas and resources could be pooled together while duplication and harmful competition could be avoided. She identified four factors that are important for successful relations which include among others: reciprocity in giving and receiving resources, system openness, trust and commitment and flexible structure.

In the study she discovered that several authors have suggested the following eight strategies for developing productive collaborative relationships:

a) Identify and clearly state specific purposes for desiring a collaborative relationship.

b) Develop objective criteria for selecting partners.

c) Locate possible partners.

d) Negotiate specific written agreements.

e) Consider all ideas so that final decisions will be fully supported.

f) Determine communication mechanisms and use them frequently.

g) Establish monitoring and evaluation procedures to correct problem.

h) Familiarize the staff of the participating organization with the agreements.

Although Ament mainly had in view collaboration in order to meet the needs of community, business and industry some of the factors and some of the strategies she discovered could equally work for collaboration in publication.

2.3 **Author Collaboration as a Measure of Communication:**

The observation of Shaw (1979: 32-37) and Pao (1981: 327-339) that joint publication establishes a relation among authors is the measure of the degrees to which they communicate directly. The extent of the strength of this relationship between any two authors, however, may be computed by counting the number of papers they publish jointly. Weintraub (1980) observed, as quoted earlier, that collaboration varies from discipline to discipline, and that whereas scientists collaborate, humanists rarely collaborate.

The degree of collaboration which this study intends to determine will be a measure of communication among Ahmadu Bello University Lecturers. Shaw's (1979: 32-37) and Pao's (1981: 327-339) observation that joint publication establishes

a relation through communication among authors which is the measure of degree to which they communicate directly is a pointer that measure of communication is closely related to this study. For it is absolutely impossible for two or more authors to publish jointly without some degree of direct communication.

In a journal article entitled "Problems of Communication and Information Handling among Scientists and Engineers in Saudi Arabia Universities" Al-Shambari and Meadows (1995: 473-478) examined and compared current communication practices of scientists and engineers in British Universities and Saudi Arabia Universities. The objective of that study was to examine communication habits of statistically significant sample of scientists and engineers in Saudi Arabia. A developing country like Nigeria.

Four (4) out of seven (7) Saudi Arabia Universities were chosen as study samples. Many academic staff were non-Saudis. The nationality of the respondents were determined for two reasons: the difference in communication practices depending in country of origin. Secondly, differing language competencies may affect information handling. Since academic seniority could affect communication habits personal data such as position, age, highest academic qualification and date of qualifications were obtained. The kind of research and information they required and their language skills were also obtained. A number of questions about their use of computer

for information handling and communication were similarly asked.

The results were that respondents indicated significant difficulties in acquiring all the information they wanted. The percentage proportion of those noting problems that prevented access to information include among others. 24% access to newspapers and magazines: 60% access to conference proceeding: 54% access to theses: 41% access to scholarly journal: 38% access to indexes or abstracts: 27% access to books. All these resources related to materials for research. Percentage problems of access to teaching materials followed a similar pattern but usually less serious for teaching materials.

Library usage as a means of communication was well spread. One third of respondents visiting the Main Library at least once a week because the main library may often not have the materials required. Considerable reliance is placed on the respondents' own resources. When asked how the respondent went about locating wanted information: large majority 72% gave first priority to searching their own files. The use of the main library came out clearly as a second priority. Most 66% used citations in other publications: 57% respondents used indexes and abstracts: 45% respondents used information from colleagues to keep up with research activities. The last resources is browsing in the library or a bookshop.

Almost 75% respondents spent more than four hours a week communicating with colleagues about both research and

teaching. 10% respondents reported difficulties of access to discussion within their institutions. Another 10% respondents said external visits were difficult. Some two third (2/3) respondents noted problems in attending conferences even when they had papers to present as such there were some difficulties in communication with colleagues at a distance.

Only one third of respondents claimed to have easy access to electronic mail (e-mail) Fax and long distance telephone calls. There was, however, high level of collaborative work. While two thirds (2/3) respondents were involved in collaborating within their institution, over one third (1/3) were collaborating with institutions abroad whereas one quarter (1/4) were collaborating with other Saudi *institutions. Only 5% of respondents habitually published* singly.

In the research study 46% of the respondents were involved in computer-base collection of research data while 29% of the respondents used computer for data relating to teaching computer usages increases as more time is devoted for research. Similarly, more frequent publication correlated with *a higher usage of computer. While staff in Mathematics and* earth Science to lesser extent use computers. Chemists and Physicists tend to use computer facilities more than other scientists.

As it is commonly found in Survey of Western researchers, the more productive research-oriented scientists and engineers

are almost those mostly involved in communication. Thus they are more likely to participate in departmental seminars to use fax to receive reprints and to hold discussions with people in other institutions. They also find access to key library materials (e.g. journals, books and abstracts) rather easier than their less productive peers. Part of Saudi Arabia *libraries problems lies in the difficulties in creating and* maintaining up-to-date collection. This is typical of libraries in developing world. Despite the fact that communication with staff in other institutions, including attendance at conferences, suffered from considerably greater limitations in Saudi Arabia there was still surprising high level of research collaboration with other institutions.

Some of the factors for and against collaboration found in this survey such as problems with the library facilities, good contacts abroad, high level of English language competence suggest that easy access to information via networks improved access to information via libraries and improved attendance at conference would be of particular value to academic scientists and engineers in Saudi Arabia.

In another study entitled Science and Communication by C.W. Hanson (1973:11) an operational research team observed the activities of thirteen hundred (1,300) chemists and discovered that communication plays a large part in science and technology. It was discovered that half their times was spent on communication of one sort or another, giving or

receiving information - talking. listening. writing and reading. One third of their time was specifically spent on scientific communication.

Communication is an integral part of day to day scientific work. The fact that nearly every scientific article or book cites other texts is a practical demonstration of the scientific communication. The citations are in effect the author's acknowledgement that the particular texts he had cited have contributed in some way to his own research study. Science is a unity because each scientist interacts with both his predecessors and his contemporaries. and every branch of science and technology interacts with each other. It is the key factor in spreading knowledge and speeding up its application. Full and open communication enables research study to be repeated and results checked. It is also essential to the informed criticism debate and judgement on which the 'truth' of science is premised.

Organised systems of communication have now replaced person to person contacts which was informal and unorganised. The need for organised communication and the scale and complexity of communication system will continue to grow because in the first place the number of scientists and technologists increases and hence the output of knowledge. Secondly. science. technology and industry develop in hitherto undeveloped parts of the world like Asia. Africa. and South America. Thirdly. specialization increases while at the same

time the interpenetration and interdependence of many branches of science also increase. Fourthly, science technology and industry increasingly become large scale cooperative activities involving the coordination of the work of people who neither work together nor even know each other. Fifthly, the store of knowledge 'the past' becomes continously larger with the daily addition of 'the present' as it becomes the past.

In practical terms the day-to-day work of scientists necessitates effective communication: to stimulate thought and action by the injection of and interaction with other peoples' ideas, knowledge, experience and achievements, to promote continuous awareness of what others are doing so that an individual worker or group may know of development in his own or their special field in wider fields of discipline, technology and interest and in science and technology generally, to diminish the probability of unwitting duplication of work and to save time and effort to provide introductory and background information for work in unfamiliar fields, to provide specific information and data needed for work in hand.

The need for effective communication in science and technology is unquestionable: but the size of the task of achieving a universal and comprehensive system of communication to meet all needs is so great as to be scarcely conceivable, and the practical difficulties seem overwhelming.

There are, however, limiting factors. In practice, the need for communication is much greater in some areas than in others. Notably much of the need is concentrated upon recent work and upon information expressed in languages understandable without translation by the people who need it. Effective communication within these areas is the first priority for almost all scientists and technologists. These limiting factors make the task of effective science-information feasible in practice, although total mastery of the whole of the world's information resources remains a pipe dream.

In modern conditions communication must be highly organized if it is to be effective even within limited areas. It is practically impossible for a scientist to hope to meet all his information needs solely by his own efforts and on his initiative. Libraries, abstracts, journals, catalogues and indexes, all involving organization and cooperation are needed to enable his personal efforts to bear fruits. Without that such aids it is no longer possible for an individual to identify, locate and obtain within an acceptable time, copies of the documents he needs among the millions that exist nor for the originators of knowledge to see that it reaches those who need it.

Knowledge is so abundant and sources of it so numerous that both the searcher for information and the disseminator of it are lost without maps, guides and addresses. When

scientists were few. communication between them could be achieved without much organised effort. Personal discussions and correspondence. and the publication of an occasional book perhaps sufficed. Later personal individual endeavour was supplemented by organised meetings. the publication of the proceedings. first of learned societies and later of professional institutions and by the establishment of large libraries. From such discrete activities grew the immense network of institutions and services existing today encompassing primary publications. reporting original work: secondary publication such as abstracts. journals. indexes and catalogues and specialised libraries and information services.

We now have a multiform communication system in science and technology. In this century it has grown large without plan or cooperation the whole depending mainly upon the individual efforts and initiative of multitude of independent bodies. large and small-professions. institutions. government departments. private firms and publishing groups - each with its own special interests.

The Importance of Information to Scientific Community is expressed in the best short statements contained in an American Report: Science. Government and Information (Report of the President's Science Advisory Committee. (1963 52). The booklet is often known as the "WEINBERG REPORT" after the chairman of the panel on science information responsible for preparing it bears the subtitle: "The Responsibilities of the

Technical Community and the Government for the Transfer of Information". although necessarily based upon conditions in the U.S.A.. its excellence justifies study elsewhere.

Duplication of Research: The result of failure to obtain information about the work of others is the unwitting duplication of research. Martyn (1964:338) after making cautious and conservative estimate the amount of money which might have been spent unnecessarily on scientific research in the United Kingdom (U.K.) due to failure to discover in time information which was available was about £6 million for the year.

How Much Time on Communication? Halbert and Ackoff. 1958 through investigation found that working scientists may spend as much as half the time on communication of one sort or another. The paper shows that when the Chemists were reading. writing. talkingm making experiements and taking readings. Other investigations of the same type have not yielded convincing evidence that scientists in other discipline normally differ remarkably from Chemists.

2.4 **Productivity and Author Collaborations**:

Price and Beaver (1966: 101) carried out a research study which revealed that the most productive author was by far the most collaborative according to them. Pao (1982: 38) also observed that the heavy collaborators were also the most prolific in their field. Productivity, however. is not the same as identifying factors influencing author collaboration.

"A Seminar on Scientific and Technical Publishing in a Multilingual Society" organized by the Directorate General for Scientific and Technical Information and Information management of the Commission of the European Communities was held in Luxembourg on November 11 and 12, 1976. About forty participants, mostly publishers and editors exchanged information on the language barrier as an impediment to the free flow of scientific and technical information, in the form of printed materials, within the European community. Among the topic raised were the increasing role of the English language in scientific and technical communication, the generally unfavourable economics of publishing specialised material in several languages and the possibility that the present situation concerning the use of different languages in scientific and technical publishing might alter with the development of new method of publishing and encouraging more cooperation between publishers in different language areas. A number of suggestions were put forward for action which might be taken within the framework of the European community.

The free flow of scientific and technical information between nine member countries is recognised as a vitally important contributor to such progress. Yet among these countries a wide variety of language is used: Danish, German, English, French, Italian and Dutch. This diversity is a major factor in the richness of European culture, but inevitably raises problem of community.

This was one of the aspects considered at "Scientific and Technical Publishing in a Multilingual Society" participants mostly publishers, editors practising scientists and engineers who also edited journals. At the end of the Seminar an attempt was made to formulate recommendations. And concluded that if the impossibility of the notion of a single language of science and technology is acknowledged, the acceptance of a wide choice of language of publication is in itself equally unsatisfactory except in so far as it makes authorship easier. Otherwise the generous provision of translation would seem to be essential.

Unlike the European community of nine member countries that use Danish, German, English, French, Italian and Dutch languages, Nigeria also have so many tribes but use or adopt English language as the only lingua franca. So diversity in multilingual factor is not a problem in collaboration in Nigeria and, therefore, could not limit or reduce author/lecturer collaboration in Ahmadu Bello University, Zaria.

2.5 ***Quality of Paper and Author Collaboration:***

Quality of papers in relation to author collaboration is, to some extent, related to this study because of three factors that affect the relationship between collaboration and quality were identified by Lawani (1980: 13-25). The three factors, according to him, include individual abilities of team members, size of the team and the cohesiveness of the team. In

other words. author collaboration enhances quality of paper produced. This might account for why some lecturers might indicate their interest to publish with their superior lecturers or professors if they have the opportunity.

2.6 **Visibility in Relation to Author Collaboration:**

Visibility and popularity of science in the last six or seven decades was due to the effect of the increased collaboration according to Beaver and Rosen (1979: 1799-1830). Increased visibility in turn results in increased recognition and authority of the authors. Like Cole and Cole's (1973: 20) discovery that authors of little or no scientific repute benefit from having high repute collaboration. Ahmadu Bello University lecturers would like to indicate their preference to publish jointly with reputable lecturers in order to be visible. Although related to this author collaboration visibility is likely to be part of the sociological factor that will be examined in this study.

2.7 **Financial Support and Author Collaboration:**

It is almost impossible to separate source of finance from any serious collaborative research study. Most especially in the field of Sciences. Hirsch and Singleton (1965: 10) stated that the amount of multiple authorship in a subject field is closely related to the amount of financial support.

There were seldom adequate resources in money or manpower for the tasks undertaken. Bi-lateral and multi-lateral arrangements and the coordination of individual efforts for

special purposes within the frame work of a general plan are seen to be increasingly necessary. Countries where a major social revolution has destroyed the old pattern and enforced a fresh start have however adopted planned and coordinated systems.

The United Kingdom in realisation of the significance of this position developed the following four stages: first the realisation that scientific progress necessitates good communication. Secondly, agreement that in modern conditions communication in science necessitates organisation and planned co-operation, thirdly, recognition that the importance, size and complexity of the task requires the highest skills to be applied to it. This is widely, although not universally, accepted in theory, but by no means always put into practice, fourthly, recognition that government interest and support may be necessary in planning, coordination and finance and perhaps the initiation of some national services. This conception is becoming widely accepted although there are few dissentient voices.

It is desirable that communication in science should embrace and be seen to embrace, all relevant forms of communication and that in the coordination and development of science information service all means of communication including non-documentary should be taken into account. This is not the position at present. Science information is synonymous with documentation. Oral communication and person

to person. contacts are equally important but are seen as outside the scope of organised information services. In the long run it will be necessary to develop. much more fully than at present. tools for facilitating non-documentary communication. the registers of specialist skills and interests. the list of meetings and conferences and other means of initiating personal contacts. This developments should be one of the tasks of science information workers during the next decade. An example is Medawer's book comprising radio talks by eminent scientists and engineers about their outstanding work.

2.8 **Summary:**

This chapter reviewed literature related to author collaboration. In particular. it reviewed literature on the following dimensions of author collaboration: Kinds of author collaboration. author collaboration as a measure of communication. author collaboration in relation to productivity. quality of paper and author collaboration. author visibility in relation to author visibility collaboration and finally author collaboration in relation to financial support. It is. however. pertinent to observe that a study of factors influencing collaboration and non-collaboration of authors has not been undertaken. This is a significant lacuna or gap in the literature of author collaboration. The present study is therefore an attempt to fill this knowledge void by investigating the factors

influencing the collaboration and non-collaboration of lecturers of Ahmadu Bello University in the humanities, social sciences, sciences and technology.

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CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents a description of the method used in carrying out the research. The chapter describes the study's population and its sample, the instrument for data collection, procedure for collecting and analysing data.

3.2 Research Method

The research method adopted for this investigation is the survey and comparative methods. It involves a survey of habits and the opinions of Ahmadu Bello University lecturers on their extent of collaboration in scholarly published papers among humanistic, social science, science and technology lecturers in the institution. Secondly the comparative method is also utilised by way of comparing the four major subject divisions of Humanities, Social Sciences, Natural Sciences and Technology.

3.3 TABLE 1: Population and Sample 1991/92

Categories	Sample Size	Population Size	Percentage Size
Humanities			
English Language	13	28	6.41
French	5	10	2.29
History	13	27	6.17
Mass Communication	3	8	1.83
Nigerian and African Languages	5	10	2.29
SUB TOTAL	39	83	18.99

Population and Sample for Social Sciences 1991/92

Categories **Social Sciences**	Sample Size	Population Size	Percentage Size
Education	14	30	6.87
Economics	10	21	4.81
Geography	7	15	3.43
Library Science	7	15	3.43
Phy. & Health Edu.	7	15	3.43
Political Science	12	26	5.95
Sociology	12	25	5.72
Voc. and Tech. Edu.	7	15	3.43
SUB TOTAL	76	162	37.07

Population and Sample for Sciences 1991/92

Categories **Sciences**	Sample Size	Population Size	Percentage Size
Biochemistry	5	11	2.52
Biology	7	16	3.66
Chemistry	9	19	4.35
Geology	4	9	2.06
Geophysics	3	7	1.60
Mathematics	11	23	5.26
Microbiology	4	9	2.06
Physics	5	10	2.29
Textile Science	3	7	1.60
SUB TOTAL	51	111	25.40

Population and Sample for Sciences 1991/92

Categories Technology (Engineering)	Sample Size	Population Size	Percentage Size
Agric Engineering	4	8	1.83
Chemical Engineering	5	11	2.52
Civil Engineering	4	8	1.83
Electrical Engineering	6	12	2.75
Land Survey	5	10	2.29
Mechanical Engineering	5	10	2.29
Metallurgical Engr.	3	7	1.60
Quantity Survey	3	6	1.37
Water Resources	4	9	2.06
SUB-TOTAL	39	81	18.54
GRAND TOTAL	205	437	100.00

The population of the study comprises all the lecturers in four major subject divisions, namely, Humanities, Social Sciences, Natural Sciences and Technology in Ahmadu Bello University 1991/92 academic year. The total number of lecturers at the time of study was four hundred and thirty seven (437) based on the information provided by two main sources, namely, Commonwealth Universities Year Book, Ahmadu Bello University Teaching Staff (1989:2337-2344) and the Ahmadu Bello University Emolument Record (1991/92:27-162). The population comprises all teaching staff from the rank of Assistant Lecturer to Professor. Using a table for determining

sample size from a given population designed by Krejcie and Morgan (1970:607-610) a sample of 205 was recommended for the population of 437. From a sample size of 205, 39 lecturers were chosen from the Humanities which comprise the following departments: English Language, French, History, Nigerian and African Languages and Mass Communication as shown by Table 3.1 above.

Another 76 lecturers from the population size of 162 were sampled to represent Social Science field from the following departments: Education, Economics, Geography, Library Science, Physical and Health Education, Political Science, Sociology and Vocational and Technical Education.

Similarly, fifty one (51) lecturers from the population size of one hundred and eleven (111) (25.40%) were also sampled from the sciences to represent Natural Sciences from the following departments: Biochemistry, Biology, Chemistry, Geology, Geophysics, Mathematics, Microbiology, Physics and Textile Science.

Lastly, 39 lecturers from population size of 81 in Engineering field were also sampled to represent Technology in the following departments: Agricultural Engineering and Survey, Metallurgical Engineering, Quantity Survey, and Water Resources Engineering.

3.4 Instrument for Data Collection

3.4.1 The Questionnaire:

The main instrument for collecting data for this study is the questionnaire. The questionnaire consists of five parts - Part "A" pertains or concerns lecturers' personal data. Part "B" is on respondents' philosophy and experience about collaboration and non-collaboration in research. Part "C" concerns Sociological factors from which respondents would choose. Part "D" is about economic factors that could be responsible for their choice of collaboration and non-collaboration. Part "E" seeks to find out geographical reasons which could be responsible for respondents collaboration and non-collaboration with other lecturers in research publication.

3.4.2 Designing the instrument:

Oral interviews were also conducted randomly with some lecturers to find out factors that were responsible for collaboration and non-collaboration of lecturers in published articles. The following categories of lecturers were interviewed: seven (7) Professors: eight (8) Readers. nine (9) Senior Lecturers: ten (10) Lecturers Grade One: twelve (12) lecturer Grade two and five (5) Assistant Lecturers. At least one lecturer was interviewed in each of the various departments in the four major subject divisions.

The results were quite revealing and they served very useful purposes. Lecturers in all disciplines were

enthusiastic about the research as if the investigator had come with solutions to some of the problems associated with collaboration.

3.5 Data Collection

Two hundred and fifty copies of questionnaire were administered in the four major subject fields of Humanities. Social Sciences. Natural Science and Technology. It was possible to get required return of 205 because 250 copies were sent out.

Copies of the questionnaire were administered through the Administrative Secretary in each Head of Department's office. These Secretaries assisted in distributing the questionnaire. The investigator's address was indicated on the questionnaire to him if and when they chose to do so. otherwise they could submit the completed questionnaire to their departmental secretaries.

3.6 Analysis of the Data

The analysis of the questionnaire is fundamentally based on percentages. The percentages were used to calculate those who collaborated and those who did not collaborate in Humanities. Social Sciences. Natural Sciences and Technology. Percentage values ranging from 60 to 100 percent denotes high collaboration. below 50 percent value denotes low collaboration while 0 percent denotes non-collaboration.

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CHAPTER FOUR

ANALYSIS OF DATA AND INTERPRETATION OF FINDINGS

4.1 Introduction

The purpose of this chapter is to analyse the data collected, report the findings and provide interpretation to the findings on the discipline in which authors collaborate and those in which they do not collaborate and to identify and discuss the factors that influence collaboration and non-collaboration among authors in scholarly published papers.

4.2 Findings and their Interpretations

4.21 Personal Data

Table 2: Distribution of Respondents by Broad Disciplines

Broad Subject Discipline	No Sent	No Returned
Humanities	50	39
Natural Science	62	51
Social Sciences	87	76
Technology (Engr.)	51	39
TOTAL	250	205

The lecturers studied were also from these disciplines. One hundred and ninety eight (198) or 97% of all the lecturers studied were males. The remaining (7) 3% lecturers were females.

Table 3: Lecturers' Length of Service in Ahmadu Bello University, Zaria 1991/92

No of Years in Service	No of Lecturers	Percentage
1 - 5	53	25.96
6 - 10	10	4.56
11 - 15	89	43.52
15 and above	53	25.96
	205	100.00

Table 2 above shows that 89 (43.52%) respondents spent between eleven to fifteen years in service while 10 (4.56%) lecturers spent between six to ten years. Some 53 (25.96%) respondents spent fifteen years and above in the University.

It was interesting to discover as revealed by the table that the number of respondents (53) who spent one to five (1-5) years in the University was coincidentally the same (53) as those who spent fifteen and above years in the University.

Some respondents indicated the number of papers they published specifying those in which they collaborated with others and those that were written singly. But the majority of the respondents failed to specify as directed in the questionnaire. The number of publications in which they did not collaborate. These data were analysed to find out the pattern of publication in each selected subject field.

The researcher could have gone further to find out the bearing of the length of service on the number of publications

by each respondent if they had given the specific number of the papers they published. But majority of the respondents were either reluctant or shy to specify the number of papers they had published collaboratively or singly despite the fact that the questionnaire specifically asked for the number of publications in which they collaborated and those in which they did not. The majority of the lecturers simply indicated their interest between collaborative publication and non-collaborative publication.

Table 4: Respondents Who Collaborated And Those Who Did Not Collaborate

Field	No of Collaborat-ive lecturers	No of Non-Collaborat-ive lecturers	TOTAL NUMBER	% of Collaborat-ive lecturers	% of Non-Collaborat-ive lecturers	TOTAL %
Humanities	9	30	39	23	77	100
Nat. Science	37	14	51	72	28	100
Social Sc.	16	60	76	21	79	100
Technology	8	31	39	20	80	100

Humanities Data From Table 4:

Overwhelming majority of lecturers in humanities 30 or 77 percent indicated that they did not participate in joint publication with their colleagues. Only 9 or 23 percent indicated that they participated in cooperative publishing. The finding shows non-collaboration among lecturers in humanities.

Natural Sciences:

Contrary to the respondents' habits of publication in humanities, overwhelming majority of lecturers in natural science 37 or 72 percent indicated that they enjoyed participation in joint publication. These writing habits of humanistic scholars and natural scientists in Ahmadu Bello University followed Weintraub's hypothetical and theoretical generalization that scientists collaborate while humanistic scholars rarely collaborate. Table 4 vividly shows this pattern.

Social Sciences:

Similar to the humanistic scholars' habits of publication of non-collaboration the percentage of non-collaborative publication by the social scientists in Ahmadu Bello University is 79 percent. While the percentage of collaboration is low with 21% as shown in Table 4.

Technology (Represented by Engineering):

The number of collaborative lecturers is 8 which is represented by 20 percent.

The percentage of collaboration in Technology in Ahmadu Bello University is similarly very low with a value falling far below 100%.

The number of non-collaborative lecturers was, however, very high with 31 and its high corresponding percentage of 80 percent.

4.22 Comparative Analysis of the Four Fields

There was low collaboration in the broad field of Humanities, Social Sciences and Technology with regard to the percentage of collaboration by ways of comparison. This finding confirmed the theoretical and hypothetical generalization of Weintraub (1980:30) that there is collaboration among respondents in the Natural Sciences but that the lecturers/respondents in the Humanities and Social Sciences rarely collaborated.

Now that the first objective of this study to identify the major subject divisions out of humanities, natural sciences, Social Sciences and Technology in which respondents collaborate has been achieved, the investigator could now proceed to find out the factors that are responsible for collaboration and non-collaboration.

4.23 Habits and Preference of Respondents on Collaboration and Non-Collaboration

HUMANITIES:

The results of the findings in humanities are as follows: Copies of questionnaire were administered on 39 lecturers. Nine (9) 23 percent respondents in this field preferred collaborative research study. The small number of lecturers and its corresponding low percentage collaboration also confirms Weintraub's (1980:30) hypothetical and theoretical generalization that humanistic scholars rarely collaborate. The number of lecturers, 30 (77) percent out of 39 and

corresponding percentage of those who preferred non collaborative study are very high when compared with the percentage of those who preferred collaborative study. This is also confirming earlier statement credited to Weintraub.

Natural Sciences:

The findings in the field of natural sciences were as follows: 37 (72%) lecturers preferred collaborative study to individual publication. In other words, the writing behaviour of Ahmadu Bello University lecturers confirmed Weintraub's (1980:30) hypothesis and Beavers' (1979:234) observation that there is high collaboration in scientific publication.

Social Sciences:

Some 60 (79%) out of 76 respondents preferred non-collaborative publication. This is a very high percentage when compared to the number 16 (21%) respondents who preferred collaborative study.

Technology:

Similarly, among the thirty nine (39) respondents in the field of Engineering, eight (or 20%) lecturers preferred collaborative study while 31 (80%) lecturers preferred non-collaborative research study. This was higher than those who preferred collaborative study. The finding in this study shows that researchers in the field of technology do not collaborate as much as those in the Natural Sciences. This findings also confirms Beaver's (1979:234) observation.

4.231 Factors Influencing Collaboration

Quite a number of researchers have written on author collaboration as discussed earlier in this research study. Some of them have theoretically and hypotehtically delved into various aspects of author collaboration in published papers such as collaboration patterns in scientific and humanistic studies. The pattern of author collaboration in specific disciplines and countries are virtually the same but no research study is known to have been carried out to find out the reasons why authors or researchers publish in the pattern in which they publish.

4.232 Sociological Factors

The data analysis on page .... revealed that 18 out of 39 (46.1%) respondents in the field of Humanities advanced sociological reasons for their refusal to collaborate with other lecturers. The sociological reasons respondents in Humanities indicated in the questionnaire are:

(a) Incompatibility with other lecturers.

(b) Unequal contribution by the team.

(c) Passive attitudes of others.

(d) Laziness of others and

(e) Desire of others to cheat.

The Sociological reasons 10 (19.6%) respondents in Natural Sciences indicate in the questionnaire why they would not collaborate are as follows:

(a) Passive attitudes.

(b) Laziness of others and

(c) Incompatibility and

(d) Unequal contintributions.

33 (64.7%) respondents who collaborated in the same Natural Sciences indicated the following sociological reasons for collaborating:

(a) That two heads are better than one.

(b) Preferred to collaborate with senior colleagues, colleagues junior lecturers and students.

(c) That the nature of their discipline made it mandatory or imperative.

The findings revealed that 47 (61.8%) respondents in the field of Social Sciences gave the following sociological reasons for their non-collaboration:-

(a) Incompatibility.

(b) Unequal contribution by the team members.

(c) Passive attitudes of others.

(d) Laziness of others.

(e) Desire of some to cheat.

TABLE 5: **Sociological Data:**

SUBJECT DIVISION	NO OF RESPONDENTS WHO HAD SOCIOLOGICAL REASONS FOR WRITING SINGLY	PERCENTAGE	NO OF RESPONDENTS WHO HAD SOCIOLOGICAL REASONS FOR COLLABORATION	PERCENTAGE	NO OF RESPONDENTS WHO WERE NEUTRAL	PERCENTAGE
TOTAL NO OF RESPONDENTS						
HUMANITIES:						
39	18	46.1	8	20.5	13	33.3
NATURAL SCIENCE:						
51	10	19.6	33	64.7	8	15.67
SOCIAL SCIENCES:						
76	47	61.8	7	9.2	22	28.9
TECHNOLOGY:						
39	15	38.5	8	20.5	16	41.02

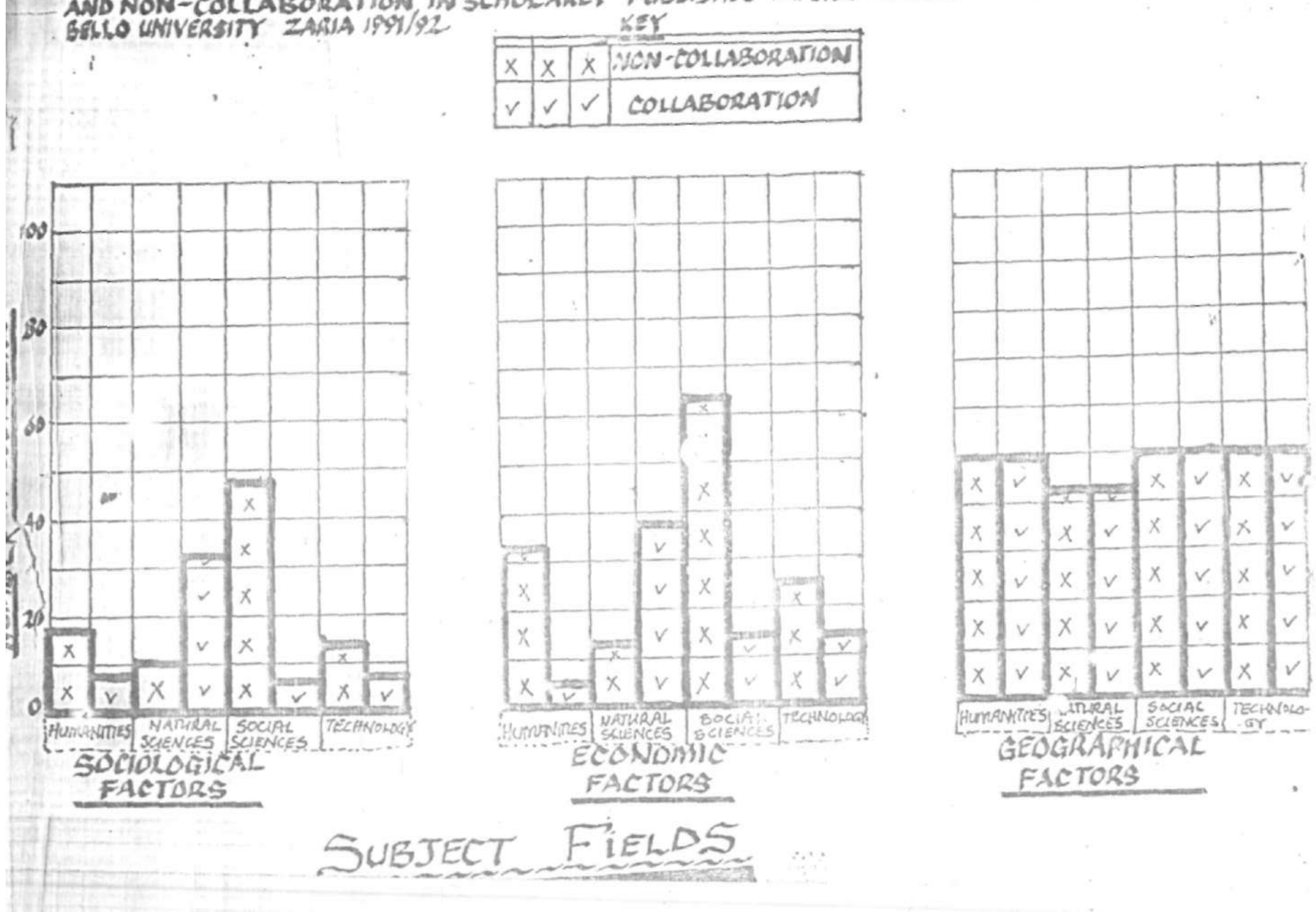
TABLE 5: **Economic Data:**

SUBJECT DIVISION	NO OF RESPONDENTS WHO HAD ECONOMIC REASONS FOR WRITING SINGLY	PERCENTAGE	NO OF RESPONDENTS WHO HAD ECONOMIC REASONS FOR COLLABORATION	PERCENTAGE	NO OF RESPONDENTS WHO WERE NEUTRAL	PERCENTAGE
TOTAL NO OF *RESPONDENTS*						
HUMANITIES:						
39	33	84.6	5	12.8	1	2.6
NATURAL SCIENCE:						
51	38	74.5	12	23.5	1	2.
SOCIAL SCIENCES:						
76	63	8.2	13	17.1	-	-
TECHNOLOGY:						
39	26	66.6	13	33.3	-	-

TABLE 5: **Geographical Data:**

SUBJECT DIVISION	*NO OF RESPONDENTS WHO HAD GEOGRAPHICAL REASONS FOR WRITING SINGLY*	PERCENTAGE	*NO OF RESPONDENTS WHO HAD GEOGRAPHICAL REASONS FOR COLLABORATION*	PERCENTAGE	NO OF RESPONDENTS WHO WERE NEUTRAL	PERCENTAGE
TOTAL NO OF RESPONDENTS						
HUMANITIES:						
39						
SOCIAL SCIENCES:	150	73.1	4	2.6	-	-
76						
TECHNOLOGY:						
39						
NATURAL SCIENCE:	7	13.7	44	86.2	-	-
51						

SOCIO-ECONOMIC AND GEOGRAPHICAL FACTORS THAT ARE RESPONSIBLE FOR COLLABORATION AND NON-COLLABORATION IN SCHOLARLY PUBLISHED PAPERS AMONG LECTURERS OF AHMADU BELLO UNIVERSITY ZARIA 1991/92



On the other hand, 8 (20.5%) lecturers out of 39 would prefer to collaborate because of sociological reasons which are quite different from those who preferred non-collaborative writing. The six reasons they gave are that they preferred to publish or write with senior colleagues, that two good heads are always better than one, and that they preferred to publish with colleagues, junior lecturers, students, and lastly with associates such as members from their ethnic group, relations, friends and spouse.

In the field of Natural Sciences 10 (19.6%) lecturers out of 51 respondents had a number of sociological reasons for their non-collaboration with other lecturers. Some of the sociological reasons were: passive attitudes and laziness of others, incompatibility and unequal contribution of others. The low number and low corresponding percentage of non-collaborating lecturers in natural sciences is because scientists generally collaborate more than humanistic scholars or social scientists. This is why 33 (64.7%) lecturers out of 51 lecturers in Natural Sciences collaborated for the following sociological reasons: that two heads are better than one, their preference to collaborate with senior colleagues, colleagues, junior lecturers and students. They went further to state that the nature of their discipline made it mandatory or imperative to collaborate (Table 6).

The findings revealed that 47(61.8%) lecturers out of 76 lecturers in the field of Social Sciences gave Sociological

reasons for their non-collaboration. The percentage of this group is high thus confirming and practically demonstrating what was hypothetically generalized that this field is dominated by single or non-collaborative authors. The reasons that this group advanced for its. Sociological behaviour are stated as follows: incompatibility, unequal contribution by the team members, passive attitudes of others, laziness of others and that others want to cheat. But 7 (9.2%) lecturers out of 76 respondents had their sociological reasons for collaborating.

The low percentage is not surprising since the field is usually characterised by single publications. Some of their reasons are that two good heads are always better than one good head. Secondly they preferred publishing with senior colleagues, junior colleagues, students and with associates including members of their ethnic group, friends and spouse. Some 22 (28.9%) lecturers out of 76 respondents decided to be neutral and silent. Only the number that indicated whether it collaborated or did not is reflected in Table 6.

4.233 Economic Factors that are Responsible for the Choice of Collaboration and Non-Collaboration

The respondents in the field of humanities gave economic reasons as to why they did or did not collaborate. Some 33 (84.6%) respondents indicated their interest in non-collaborative research study. The following are the reasons they gave:

(a) That their salary is increased by writing singly because individual research study scored more points for promotion.

(b) That research grant was always insufficient to be shared with others.

On the other hand, 38 (or 74.5%) respondents in Natural Sciences indicated the economic reasons for their preference for collaborative research as follows:

(a) The research grant was adequate.

(b) Their institution is well equipped with research materials.

The respondents in the field of Social Sciences gave the following economic reasons why they were not keen in collaborating with others:

(a) That writing individually scores more points for promotion in assessment than collaborative study.

(b) That they were able to divert part of the research grant to meet their immediate personal financial commitment.

(c) That the grant was not always sufficient.

In the field of technology, greater percentage like in Humanities and Social Sciences 26 (66.6%) respondents indicated the following economic reasons why they preferred non-collaborative study.

(a) That research grant was always inadequate.

(b) That individual publication scored more points for promotion in academic assessment exercise than

collaborative study.

As indicated in Table 6, the lecturers in the field of Social Sciences of Ahmadu Bello University, Zaria also gave economic reasons why they were not keen in collaborating with others. According to the above table some 63 (82.8%) out of 76 lecturers indicated that they preferred individual publication because this scores more points for promotion in academic assessment than collaborative study. However, two lecturers reported that they were able to divert part of the research grant to meet their immediate personal financial commitment. Furthermore, all the 63 (82.8%) respondents indicated that the grant was not always sufficient. The high number of non-collaborative authors has been discovered to be the characteristic of Social Sciences and humanities. The remaining 13 (17.1%) out of 76 lecturers indicated that they preferred collaborative study because of adequacy of research grants and that the institution was well equipped with research materials.

In the field of technology, the study as revealed by Table 6 shows that 26 (66.6%) out of 39 lecturers indicated economic reasons why they preferred non-collaborative study. Some 26 (66.6%) lecturers, however, indicated that the research grant was always inadequate and that individual publications scored more points for promotion in academic assessment exercise than collaborative study. Some 13 (33.3%) lecturers, however, preferred collaborative study. According

to them the grant was fairly adequate and the institution was fairly equipped.

4.234 Geographical Factors for Collaboration

In the literature review in this study those who preferred collaboration had attributed their problem of collaboration with others in far away institutions to lack of various communications. This inhibiting factor is geographical factor.

All the respondents in the three fields of Humanities, Social Sciences and Technology with a total of 150 (73.1%) respondents did not encounter problem of communication based on geographical factor for not collaborating. The reason being that since the respondents would not collaborate they had no geographical problems. They did not see communication problem in terms of distance as one of the reasons for not collaborating.

But in the Natural Sciences majority of the lecturers 44 (86.2%) indicated communication with far away institutions was a barrier because of the geographical location of the institutions. Those who collaborated with others from outside the University for instance Physics Department lecturers indicated that they had formed strong national and internationally recognised research group in accordance with their professional principle of interdependent of their field. The relationship of Geology to Physics made it necessary and mandatory for lecturers in Geology and Physics to come

together. In this study one respondent indicated that he collaborated with other authors in such places as Sweden, Nairobi and Houston. Finally lecturers in the field of Natural Sciences who collaborated highly in published papers indicated the problem of distance as a barrier to in collaboration.

4.3 Conclusion

Ament, in her opinion as expressed in an article entitled "Collaboration in Adult Education" said that adult education providers try to meet the needs of the community, business, and industry. In her view collaboration can be very advantageous in terms of information, ideas, and that resources can be pooled and duplication and harmful competition can be avoided. She gave us four factors that are important for successful relationships. The first one is reciprocity in giving and receiving resources. The second is the system openness. The third is the trust and commitment. The last is the flexible structure. She gave eight strategies which several authors have suggested for developing productive collaborative relationships. The strategies are the following:

1. Identify and clearly state specific purposes for desiring a collaborative relationship.
2. Develop objective criteria for selecting partners.
3. Locate possible partners.
4. Negotiate specific written agreements.
5. Consider all ideas so that final decisions will be fully supported.

6. Determine communication mechanism and use them frequently.
7. Establish monitoring and evaluation procedure to correct problems, and lastly
8. Familiarize the staff of the participating organizations with the agreements.

Although the common types of collaborative arrangements in adult education as revealed in this study are with business and industry, professional groups and community economic development programs as against collaboration in scholarly published paper. There are certain human elements and strategies for developing productive collaborative relationships which are common and similar.

However, Gibb J.M. and Philips E. in scientific and technical publishing in a multilingual society discovered how language could be an impediment to the free flow of scientific and technical information and how it was overcome. Language barrier in the light of this has to be overcome in the nine European communities of Danish, German, English, French, Italian and Dutch. The unity in diversity in publishing in Europe despite the fact that varieties of languages are used is a major factor in the richness of European culture. In Nigeria where we also have multilingua society language has not been a barrier to free flow of communication and information in that English language is our lingua franca.

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CHAPTER FIVE

SUMMARY OF FINDINGS. CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the findings of the study as derived from the analysis of data in chapter four. draws conclusion and makes recommendation for improvement.

5.2 SUMMARY OF FINDINGS

5.21 Findings in Humanities. Social Sciences and Technology

In the field of Humanities 9 (23%) respondents collaborated whereas 30 (77%) respondents did not collaborate. In Social Sciences 16 (21%) respondents collaborated when 60 (79%) respondents preferred non-collaboration. Similarly. in the field of technology 8 (20%) respondents preferred collaboration whereas 31(80%) respondents preferred non-collaboration.

5.22 Findings in Natural Sciences

The summary findings in the Natural Sciences was that 37 (72%) respondents preferred collaboration but 14 (28%) respondents preferred non-collaboration. The findings were in conformity with Weintraub's theoretical and hypothetical generalisation.

There is low collaborative research study in Humanities. Social Sciences and Technology. In other word these fields are dominated by single individual publication and there is no trend towards collaboration contrary to the habits of lecturers in Natural Sciences. there is low

collaborative research study in Social Science field.

Some 16 (21%) lecturers published collaborative studies while 60 (79%) lecturers did not. Similarly, in the the field of Technology 8 (20%) respondents collaborated while 31 (80%) did not collaborate in research studies.

5.3 SOCIOLOGICAL FACTORS

5.31 Sociological Factors Why Humanities Refused to Collaborate with Other Lecturers:

Some 19 (48.7%) lecturers in Humanities gave Sociological reasons for their refusal to collaborate with other lecturers. Among the reasons given by these respondents were:

i. Incompatibility with others

ii. Unequal Contribution by the Team Members.

iii. Passive Attitudes.

iv. Laziness of others.

v. Desire to cheat others.

On the whole the number of lecturers who had Sociological reasons or factors for their refusal to collaborate are far greater in percentage 48.7% compared with 20%.

5.32 Summary of Findings on Sociological Factors why Respondents in Natural Sciences would Collaborate with Others.

The greater number and percentage 31 (60.7%) of respondents in Natural Science out of the total

respondents of 51 gave the following Sociological reasons for Collaborating:

i. That two good heads are better than one good head.

ii. That collaborating with superior lecturer was preferred.

iii. That they preferred to collaborate with colleagues, junior lecturers and students.

iv. That the nature of their discipline makes it mandatory or imperative to collaborate with others.

5.33 **Summary of Findings on Sociological Factors why Respondents in the field of Social Sciences would not Collaborate.**

Some 47 (61.8%) respondents out of 76 respondents a greater percentage in the field of Social Science attributed their Sociological Reasons for their Non-Collaboration to the following:

i. Incompatibility.

ii. Unequal contribution by the research team members.

iii. Passive attitudes of others.

iv. Laziness of others and

v. That others want to cheat.

5.34 **Summary of findings in the field of technology on why respondents did not collaborate. Some 11 (28.2%) respondents have the following sociological factors why they would not collaborate:**

i. Incompatibility with others.

ii. Passive attitudes of others.

iii. Laziness of others.

v. That others deliberately want to cheat.

5.4 ECONOMIC FACTORS

5.41 Economic Factors why Respondents in the Field of Humanities Indicated their Preference for Non-Collaborative Research Study:

Some 33 (84.6%) respondents in the field of humanities indicated their preference for non-collaborative research study because of the following economic factors.

i. That the research grant is always insufficient to be shared with co-writers.

ii. That the research grant after it must have to pay for the research facilities.

Some 5 (12.8%) respondents conversely indicated their preference for collaborative research and gave the following factors for their preference:

i. That research grant was always adequate.

ii. Lecturers institution was fairly equipped with research materials.

5.42 Economic factor why respondents in the field of Natural Sciences collaborate.

Some 38 (74.5%) lecturers in the field of Natural Sciences indicated the economic factors for their preference for collaborative research as follows:

i. That the research grant is adequate.

ii. And that the institution is equipped with research materials. Few 12 (23.5%) respondents, however, indicated

their preference for non-collaborative.

5.43 **Economic Factor on Why Respondents in the Field of Social Sciences Preferred Individual Publication:**

54 (71%) respondents in the field of Social Sciences gave the following economic factors why they preferred individual publication:

i. That individual publications score more points than joint publications for promotion.

ii. Two respondents shamelessly indicated that they were able to divert part of the research grant for their immediate personal financial commitment.

iii. That the research grant is not always sufficient.

5.44 **Economic factors why respondents in the field of Technology preferred non-collaborative study.**

Some 25 (64.1%) respondents indicated the following economic factors for their preference for non-collaborative research.

i. That the research grant is always inadequate.

ii. That individual publications score more points in promotion assessment than joint publication. thus improving economic situation of the respondents. Few 13 (33.3%) respondents, however, had a different view contrary to the view of the larger member of the respondents.

5.5 GEOGRAPHICAL FACTORS:

5.51 Geographical Factors on Why Respondents in the Field of Humanities, Social Sciences, and Technology would not collaborate.

Some one hundred and fifty (150) respondents in the three fields, fifty (50) from each field had no geographical factors for not collaborating. This was so with this group because the fields are characterised and dominated by single publications.

5.52 Geographical Factors on Why Respondents in the Field of Natural Sciences Preferred to Collaborate.

The majority of the respondents 47 (92%) in this field indicated that collaborating with other lecturers in far away institution was a barrier.

5.6 SUMMARY OF FINDINGS ON SOCIOLOGICAL FACTORS

5.61 Summary of Findings on Sociological Factors on Humanities:

Some 19 (48.7%) lecturers in humanities gave sociological reasons for their refusal to collaborate with other lecturers. Among the reasons given by the 19 (48.7%) respondents out of their total number of 39 lecturers were :

(a) incompatibility with others.

(b) unequal contribution by the team members.

(c) passive attitudes.

(d) laziness of others.

Conversely, the low percentage (20.5%) of lecturers in the same humanities who collaborated for sociological reasons as shown in Table 6 gave the following reasons:

(a) That two good heads are always better than one good head.

(b) That they derived pleasure in writing jointly with relations, friends, tribe mates, and spouses. The remaining 12 (30.7%) lecturers decided to be neutral.

On the whole the number of lecturers who had sociological reasons for their refusal to collaborate are more in number (48.7%) than those who collaborated (20.5%).

5.62 Summary Findings on Sociological Factors from Natural Sciences

Ten (19.6%) out of 51 lecturers had their sociological reasons for their refusal to collaborate with other lecturers. Their reasons are as follows:

(a) passive attitudes of others;

(b) laziness of others;

(c) incompatibility of others;

(d) unequal contribution of others.

The low number (10) and the corresponding low percentage (19.6%) of lecturers in natural science who would not write jointly with others is in order. This is simply because scientists collaborate more than humanistic scholars anywhere in the world. This is also why 31 (60.7%) lecturers out of 51 collaborated. This high percentage of respondents gave the following sociological reasons:

(a) That two good heads are better than one good head;

(b) That collaborating with superior lecturers was preferred;

(c) They preferred to collaborate with colleagues: junior lecturers and students.

(d) That the nature of their discipline makes it mandatory or imperative to collaborate with others.

Table 6 displays the number of lecturers who wrote jointly and those who did not.

5.63 **Summary Findings on Sociological Factors from Social Sciences:**

Some 47 (61.8%) lecturers out of 76 respondents in the field of social sciences attributed their sociological reasons for their non-collaboration to the following:

(a) Incompatibility:

(b) Unequal contribution by the research team members:

(c) Passive attitudes of others:

(d) Laziness of others and

(e) That others want to cheat.

This 61.8% is high thus demonstrating and practically validating what Weintraub hypothetically generalized. Some 8 (10.5%) out of 76 lecturers indicated sociological reasons why they preferred to collaborate. The low percentage collaboration in social sciences is not surprising since the field is usually characterised by single publications. This group of lecturers gave the following as their sociological reasons:

(a) That two good heads are better than one good head:

(b) Their preference to publish with colleagues, junior lecturers, students, tribe mates friends and spouses.

Some 21 (27.6%) lecturers decided to be neutral and they are not reflected in Table 6.

5.64 **Summary Findings on Sociological Factors from Technology:**

In the field of technology discipline 11 (28.2%) lecturers would not collaborate with others to publish for sociological reasons they gave as follows:

(a) Incompatibility with others:

(b) Passive attitudes of others:

(c) Laziness of others and

(d) That others deliberately want to cheat.

Some 8 (20.5%) lecturers did not see anything bad in collaborating with others because of the following sociological reasons:

(a) two good heads are better than one good heads:

(b) that collaborating to publish with superior lecturers. colleagues. junior lecturers. tribe mates. friends and spouses are advantageous.

5.7 SUMMARY OF FINDINGS ON ECONOMIC FACTORS

5.71 **Summary Findings on Economic Factors from Humanities:**

Some 33 (84.6%) humanistic lecturers out of the total of 39 lecturers indicated their preference for non-collaborative research study for the following economic reasons:

(a) That individual research study scores more points for promotion in the recent rating system:

(b) That the research grant is always insufficient to be shared with others.

Few 5 (12.8%) lecturers conversely indicated their preference for collaborative research because:

(a) Research grant was always adequate:

(b) That the institution is fairly equipped with research materials.

5.72 **Summary Findings on Economic Factors from Natural Sciences:**

Conversely. 38 (74.5%) lecturers out of 51 in natural sciences indicated their preference for collaborative research because of the following reasons:

(a) the research grant is adequate.

(b) the institution is equipped with research materials.

While 12 (23.5%) lecturers. however indicated their preference for non-collaborative research study because of the following reasons:

(a) that they derive pleasure in individual personal research study:

(b) that individual publications score more points in promotion exercise.

(c) that the research grant was always grossly inadequate and insufficient.

The data in Table 6 presented how the pattern of publication amon g the authors have socio-economic and geographical implications.

5.73 **Summary Findings on Economic Factors from Social Sciences Field:**

Table 5 presented 54 (71%) social scientist lecturers indicating economic reasons why they preferred individual publication:

(a) That individual publications score more points than joint publication for promotion:

(b) Only two lecturers shamelessly indicated that they were able to divert part of the research grant for their immediate personal financial commitment:

(c) All the 54 respondents indicated that the research grant is not always sufficient. The higher number of non-collaboration in social sciences is the characteristics of this field.

5.74 **Summary Findings on Economic Factors from Technology Field:**

In the field of technology represented by engineering the research study, as revealed by Table 5, shows how 25 (64.1%) lecturers out of 39 indicated economic reasons why they preferred non-collaborative study. The reasons they gave are as follows:

(a) That the research grant is always inadequate.

(b) That individual publications score more points in promotion assessment than joint publications.

While 13 (33.3%) lecturers, however, preferred collaborative study because to them the research grant is fairly adequate and the institution was fairly equipped

with research facilities.

5.8 SUMMARY OF FINDINGS ON GEOGRAPHICAL FACTORS

5.81 Summary Findings on Geographical Factors from Humanities, Social Sciences and Technology:

Three options were given to the respondents under geographical reasons for collaboration and non-collaboration. Some one hundred and fifty lecturers, fifty each from humanities, social sciences, and technology indicated they did not encounter problems of communication as one of the geographical factors for not collaborating. These three fields are characterised and dominated by single publications.

5.82 Summary Findings on Geographical Factors from Natural Sciences Field:

On the other hand, the natural science field is characterised with collaborative publications. The majority of the lecturers: 47 (29%) in this field indicated that communication gap is still a barrier because of geographical location of the institution. Those who collaborated with others in far away countries in geophysics department indicated that they had formed strong national and international recognised research group in accordance with their professional principles of inter-dependency of their field.

The required knowledge of geology in geophysics makes it imperative or mandatory for the lecturers in geology and physics to come together for the purpose of publishing

jointly. A lecturer in the natural sciences gave a list. at the foot of his copy of questionnaire of the countries with whom his department internationally collaborate as Sweden. Nairobi and Houston. In a nutshell lecturers in the natural sciences who internationally collaborated indicated that geographical factor in terms of distance is a problem hampering collaborative study.

5.9 CONCLUSION

On the basis of the findings summarized above the following conclusions are made: Weintraub (1960:30) hypothetical and theoretical generalization that scientists collaborate in scholarly publication while Humanistic Scholars rarely collaborate has now been confirmed and documented. This has been determined and confirmed by this study by the use of percentage. The study revealed (23%) collaboration in Humanities: 72% collaboration in Natural Sciences. 21% collaboration in Social Sciences and 20% collaboration in Technology.

The study also revealed so many reasons and factors that are responsible for collaboration and non-collaboration. Prominent among the reasons is that each discipline by its nature either encourages or discourages collaboration. This is why some respondents in Natural Sciences indicated that it is imperative or mandatory to collaborate in scholarly published papers. Although there are other pheripheral reasons that encourage and discourage collaboration such as human

relations. human nature or characteristics. languages in some other countries. communication gap as a result of geographical distance of research and absence of internet or E-mail facility to bridge communication gap.

5.10 **Recommendations and Suggestions for Further Studies Based on the Findings and Conclusions drawn from the Research.**

The following recommendations are made:

1. That researchers should try as much as possible to use whatsoever meagre research grant is released for research be used for the research for which it is released. This recommendation is necessary because the condition of service of lecturers/respondents in Nigeria is very poor.
2. That our researchers should make the maximum use of the library resources available to them in order to be able to tap Nigeria's economic potentialities and resources. This recommendation is relevant to this research study because some respondents indicated in the questionnaire that the reading materials available in their library were inadequate and this thus frustrated their efforts to collaborate in writing.
3. That the research grants be increased for researchers in the humanities. social science and in technology with their counterparts in natural sciences.
4. Both local and international collaborative research studies should be encouraged in every institution of higher learning and research centres for qualitative

publications.

5.11 SUGGESTIONS FOR FURTHER STUDIES

1. As suggestion for further studies it might be interesting to use Journal Citation Report and source publication lists corporate index by Institute for Scientific Information to find out in the sciences and in humanities for certain period of time the number of articles in which authors of those articles collaborated and the number of articles in which the authors did not collaborate. And see if the results of the findings would be similar to findings of this research study in terms of collaboration in sciences and in humanities.
2. Select two Nigerian Federal Universities. and compile the list of publications of each University separately to find out from the list of publications which of these two Universities collaborated more than the other. And what are the factors that are responsible for this.

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Kashim Ibrahim Library,
Ahmadu Bello University, Zaria.

Date:.....19...

Dear Sir/Madam,

I am a Postgraduate Student in the Department of Library Science conducting a research in partial fulfilment for the award of Masters Degree in Library Science on the Topic: Factors Responsible for collaboration and Non-Collaboration in the published papers among lecturers in Ahmadu Bello University, Zaria".

This project involves collection of salient data from various faculties and departments.

Your department has been chosen as one of the samples to be studied. You are, therefore, requested to help complete the attached questionnaire: I, earnestly promise to treat the responses with the greatest confidentiality they deserve.

Thank you for your co-operation.

Yours faithfully.

D. S. ABDULLAHI

APPENDIX

SECTION "A" PERSONAL DATA:

Please tick in the appropriate spaces provided. NOTE: The key for 6 - 8 is 1 = None: 2 = Little: 3 = Much: 4 = Very Much.

1. Name of Faculty:.....

2. Sex: Female ( ) Male ( )

3. Tick your equivalent status:-

(a) Prof. ( ) (b) Reader ( ) (c) Senior Lecturer ( )

(d) Lecturer I ( ) (e) Lecturer II ( ) (f) Asst. Lecturer ( ) (g) Graduate Assistant ( )

4. Academic discipline of respondent:-

(a) Engineering and Technology ( ) (b) Humanities ( )

(c) Sciences ( ) (d) Social Science ( )

5. Academic level of respondent:-

(a) Sub-degree ( ) (b) Degree ( ) (c) Postgraduate ( )

6. Length of service in the University:-

(a) Below 5 years ( ) (b) 6 - 10 years ( )

(c) 11 - 15 years ( ) (d) Above 15 years ( )

7. Have you ever published papers before? (a) YES ( )

(b) NO.

8. Enter the number of (a) Collaborative work ( )

(b) Non-Collaborative work ( )

9. Have you accepted grant for research project you are yet to carry out? (a) YES ( ) NO ( )

SECTION 'B'

I. Your philosophy and experience about collaboration and non-collaboration in research work:

		1	2	3	4
1.	I prefer collaborative work	----------			
2.	I prefer non-collaborative publishing	----------			
3.	I prefer both	----------			
4.	The inter-disciplinary nature of my discipline makes collaboration imperative	----------			
5.	The inter-disciplinary nature of my discipline makes collaboration optional.	----------			
6.	The nature of my discipline makes non-collaboration imperative.	----------			
7.	The nature of my discipline makes collaboration optional.	----------			
8.	Colleagues derive pleasure in publishing with me.	----------			
9.	Colleagues decline to publishing with me	----------			
10.	Non-availability of research materials is responsible for my my collaboration.	----------			
11.	Availability of research material is responsible for my publishing individually.	----------			

II. Rank in your order of priority circumstances in which you would like to claim principal author and your reasons for collaborating with others.

		1	2	3	4
1.	When I am responsible for the larger part of the content.				
2.	When I am the supervisor.				
3.	When I collaborate with colleagues.				

SECTION 'C'

I. The Sociological Factors that are responsible for my Non-collaboration in publishing.

		1	2	3	4
1.	Incompatibility with others				
2.	Unequal contribution by the team				
3.	Passive attitudes of others				
4.	Laziness of others				
5.	Other lecturers want to purposely cheat				
6.	I dislike publishing with students or				
7.	I dislike publishing with junior lecturers.				
8.	One good head is always better than two heads.				

II. Rank in the order of your priority the following Sociological factors which are responsible for your collaboration in publishing.

		1	2	3	4
1.	Two good heads are always better than one good head.				
2.	I prefer publishing with students.				
3.	I prefer publishing with junior lecturers/				
4.	I prefer publishing with superior lecturers.				
5.	I prefer collaborating with colleagues.				
6.	I derive pleasure in collaborating with associates such as tribes mates.				
7.	I derive pleasure in collaborating with relations.				
8.	I derive pleasure in collaborating with friends.				
9.	I prefer to collaborate with my spouse.				

SECTION 'D'

ECONOMIC FACTORS THAT ARE RESPONSIBLE FOR MY CHOICE OF COLLABORATION AND NON-COLLABORATION.

		1	2	3	4
1.	The research grant (usually approved for research work) is always adequate.				
2.	My institution is well equipped in research materials.				
3.	I derive pleasure and pride in individual/personal work.				
4.	Individual research work scores more points for promotion assessment.				
5.	Non-collaborative work enables me to divert research grant for personal commitment.				
6.	My Institution is defficient in research materials.				
7.	The research grant is always insufficient to be shared both research work and personal commitment.				

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SECTION 'E'

GEOGRAPHICAL FACTORS

		1	2	3	4
1.	Communication problem is responsible for my collaborating with others in distant institution.				
2.	I prefer to collaborate with others in the same institution.				
3.	Lack of current research materials in my institution is responsible for my collaborating with others in distant institutions.				

Come Freely:.....

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