AUTHORITY CONTROL IN AN ACADEMIC LIBRARY CONSORTIUM USING A UNION CATALOGUE MAINTAINED BY A CENTRAL OFFICE FOR AUTHORITY CONTROL

by

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AUTHORITY CONTROL IN AN ACADEMIC LIBRARY CONSORTIUM USING A UNION CATALOGUE MAINTAINED BY A CENTRAL OFFICE FOR AUTHORITY CONTROL is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

....

SIGNATURE DATE

(MS H MARAIS)

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ABSTRACT

Authority control is the backbone of the library catalogue and therefore a critical library activity. Experienced staff create authority records to assist users in their quest for information. The focus of this study is on authority control as a means of co-operation in academic library consortia using a union catalogue maintained by a Central Office for Authority Control.

Literature studies were conducted on three sub-problems: the development of academic library consortia in South Africa, and various forms, characteristics and functions of academic library consortia in general; the characteristics, principals and objectives of authority control; and the functions of union catalogues with special reference to the role of Z39.50 within virtual union catalogues. The conclusion was that existing and new authority records should be made available as widely as possible within consortia through a union catalogue. It is however a partial solution, because not all the libraries within the consortium have the expertise to create new authority records.

Two empirical studies were conducted. A cost analysis was done to determine the cost of creating and changing authority records within academic library consortia in South Africa, in order to choose a system within which authority control can be performed effectively and speedily.

Secondly, a questionnaire was sent to libraries in the United States to gather information on their experiences with regard to authority control, library co-operation in general, and virtual union catalogues. The United States was the natural choice because it could be regarded as the birthplace of modern library consortia. Inferences drawn from the information received was used to develop the structure and functions for a Central Office for Authority Control in academic library consortia in South Africa.

It was found that authority control within an academic library consortium using a union catalogue could be conducted most cost-effectively and timeously through such a Central Office for Authority Control. The purpose of the Central Office would be to co-ordinate authority control within the consortium. Pooling available resources within the consortium would keep the cost of authority control as low as possible. Libraries with the required infrastructure and expertise would have the opportunity to create authority records on behalf of other libraries and be compensated for their services. Through such a Central Office more authority records created according to

mutually accepted standards would be available for sharing within the consortium.

Key words:

academic library consortia
authority control
cataloguing costs
co-operative cataloguing
library co-operation
NACO
union catalogues
virtual union catalogues
Z39.50

ABBREVIATIONS

AAAF	Anglo-American Authority File
AACR2	Anglo-American Cataloguing Rules, 2nd rev. ed.
ALA	American Library Association
ANSI	American National Standards Institute
ARL	Association of Research Libraries
ARPAnet	Advanced Research Projects Agency Network
ASCII	American Standard Code for Information Interchange
BIBCO	Bibliographic Record Cooperative
BL	British Library
CALICO	Cape Library Consortium
CALIS	China Academic Library and Information System
CANMARC	The version of the MARC format devised and used by the National Library of Canada
CATNIP	Cataloguing Network in Pietermaritzburg
CBUC	Consortium of Academic Libraries of Catalonia
cd	compact disc
CD-ROM	Compact disc read-only memory

CENL	Conference of European National Librarians
CPCA	Cataloguing Policy Convergence Agreement
CoBRA	Computerised Bibliographic Record Actions
CONSER	Co-operative Online Serials Program
CSIR	Council for Scientific and Industrial Research (South Africa)
CUP	Committee of University Principals
CURL	Consortium of University Research Libraries
DARPA	Defence Advanced Research Projects Agency
EBSEMSA	Evangelical Bible Seminary
EC	European Commission
eLib	Electronic Libraries Programme of UK Higher Education
ESAL	Eastern Seaboard Association of Libraries
ESATI	Eastern Seaboard Association of Tertiary Institution
EU	European Union
Fedsem	Federal Theological Seminary
FOTIM	Foundation of Tertiary Education Institutions in the Northern Metropolis
FRANAR	Functional Requirements and Numbering of Authority Records Working Group
FRELICO	Free State Library and Information Consortium

GAELIC	Gauteng and Environs Library Consortium
GARE	Guidelines for Authority and Reference Entries
GARR	Guidelines for Authority Records and References
Gcats	GAELIC Cataloguing and Technical Services Workgroup
GPO	Government Printing Office (United States)
HSRC	Human Sciences Research Council
ICOLC	International Coalition of Library Consortia
IFLA	International Federation of Library Associations and Institutions
ISADN	International standards authority data number
ISAN	International standard authority number
ISBD	International standard bibliographic description
ISBN	International standard book number
ISCOR	Iron and Steel Corporation (South Africa)
ISO	International Organization for Standardization
IT	Information technology
IULC	Inter-University Library Committee
LAN	Local area network
LEAF	Linking and Exploring Authority Files

LC	Library of Congress
LCNAF	Library of Congress Authority File
LCSH	Library of Congress subject headings
LCRI	Library of Congress Rule Interpretations
LITA	Library and Information Technology Association
LSP	Linked Systems Project
MALMAD	Israel Center for Digital Information Services
MALVINE	Manuscripts and Letters via Integrated Networks Europe
MARC	**Ma**chine-**r**eadable **c**ataloguing
MEDUNSA	Medical University of Southern Africa
MILO	Maryland Interlibrary Organization
MODELS	**Mo**ving to **D**istributed **E**nvironments for **L**ibrary **S**ervices
NACO	National Coordinated Cataloging Operations, or Name Authority Cooperative Project
NCCP	National Co-ordinated Cataloging Program
NISO	National Information Standards Organization
NPAC	National Program for Acquisitions and Cataloging
OCLC	Online Computer Library Center, Inc.
ODBC	Open database connectivity

OPAC	Online public access catalogue
PCC	Program for Cooperative Cataloging
PSDN	Packet switched data network
PSTN	Public switched telephone network
PU for CHE	Potchefstroom University for Christian Higher Education
RAU	Rand Afrikaans University
REMUS	Retrospective Music Project
RICP	Regional Institutions Co-operative Project
RLG	Research Libraries Group
RLIN	Research Libraries Information Network
Sabinet	South African Bibliographic and Information Network
SaCat	South Africa's union catalogue
SACO	Subject Authority Cooperative Program
SALA	South African Library Association
SAMARC	South African machine-readable catalogue
SANB	South African National Bibliography
SASOL	South African Coal, Oil and Gas Corporation
SDC	System Development Corporation

SDI	Selective dissemination of information
SEALS	South Eastern Academic Libraries System
TNG	Technikon Northern Gauteng
UBC	Universal bibliographic control
UBCIM	Universal Bibliographic Control and International MARC Programme
UMI	University Microfilms International
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIMARC	Universal machine-readable cataloguing
Unisa	University of South Africa
UNP	University of Natal, Pietermaritzburg
UP	University of Pretoria
US OR USA	United States of America
USMARC	The version of the MARC format operated by the Library of Congress
WAN	Wide area network
WCLC	Western Cape Library Cooperation Project
WCTIT	Western Cape Tertiary Institutions Trust
WG MLAR/ISADN	Working Group on Minimal Level Authority Records and International Standard Authority Data Numbers
Wits	University of the Witwatersrand

Wits Technikon	Technikon of the Witwatersrand
WLN	Western Library Network
WNNR	Wetenskaplike en Nywerheidsnavorsingsraad (Suid-Afrika)
Z39.50	International Retrieval (Z39.50), Application Service Definition and Protocol Specification, ANSI/NISO Z39.50-1995
ZIG	Z39.50 Implementers Group

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CHAPTER 1

THE PROBLEM AND ITS CONTEXT

1.1 INTRODUCTION

The concept of library co-operation is not new and the need for a co-operative approach towards the achievement of individual goals and objectives has long been recognised. During the past two decades most academic libraries in South Africa have suffered budgetary cuts, which has affected the level of service to users in terms of the quality of library collections and the degree of staff support.

There is general agreement among librarians that independence or self-sufficiency versus co-operation is no longer an issue. The issue is to identify viable options for co-operation, costs and benefits. Together, a number of organisations could attempt solutions to meet or partially meet their needs through co-operation. It may well become necessary for a library to identify a package of formal relationships with other institutions best suited to the library and its clients. One way of achieving this is by forming a consortium with other institutions.

Library consortia in South Africa are a recent phenomenon. The first consortium was established in the early nineties, whilst the first library consortium in the United States dates back to the 1920s when the Claremont University in California and Atlanta University in Georgia started collaborating (Wallace 1975: 1). Academic libraries initiated co-operative ventures long before other libraries indicated any interest in formal co-operative activities.

The focus of this thesis is on cost-effective authority control as a means of co-operation in library consortia.

In Chapter Three it becomes evident that authority control is the backbone of the library catalogue and therefore an important library activity. The question is how libraries may still afford to execute authority control in the light of the lack of funds and personnel. A slogan devised by a joint CONSER/NCCP meeting (Anderson 1993: 71) in 1992 provided an answer of **"MORE - BETTER - FASTER - CHEAPER"**. With ever-decreasing budgets and staff, libraries need to utilise all the resources at their disposal to maintain high service levels.

An increase in the number of library consortia in South Africa indicates that libraries prefer more formal and structured ways of co-operation. The principal purpose of this study is to investigate the viability of a Central Office for Authority Control as a mechanism to facilitate co-operation with regard to authority control in an academic library consortium using a union catalogue.

This chapter begins with a brief history of library co-operation. As further background to the problem statement:

- the result of a preliminary literature study on library co-operation and authority control is discussed,
- library co-operation is defined,
- factors fostering co-operation identified, and
- barriers to co-operation discussed.

A more detailed literature study on cost studies in libraries follows in Chapter Five. Different areas for co-operation are also mentioned in order to show the potential for co-operative activities in authority control. A discussion of the development of library consortia in South Africa concluded the background information. The formulation of the problem includes a motivation, subproblems, the methodological approach and a list of definitions.

1.2 HISTORY OF LIBRARY CO-OPERATION

The history of library co-operation in the United States and Great Britain will be discussed, because they have a long tradition of library co-operation. It will be followed by the history of library co-operation in South Africa. Although the concept of library co-operation is not new, there is no consensus as to when co-operation actually began. Blackburn (1971: 56) reported that library co-operation was first recorded in Egypt at the time of the Ptolemies.

Becker (1969: 306-317) has traced library co-operation in the United States back to 1832. He used Vattemare's description of the chronology of co-operative efforts in the United States. Grisham (1992: 38), Clapp (1973: 149-154) and Paulson (1969: 156-159) claimed that interlibrary co-operation and informal networks in the United States began in 1901 with the introduction of the Library of Congress card service, signifying the start of shared bibliographic data and marking the beginning of centralised cataloguing that allowed libraries to use bibliographic records created by other libraries. This was followed by the development of the *American Library*

Association (ALA) Cataloguing Rules in 1908 (standardisation of bibliographic description) and the publication of the *American Library Association Interlibrary Loan Code* in 1917 (voluntary sharing of library resources).

Kaplan's (1973: 139-145) review of library co-operation in the United States showed that there were movements towards co-operation even before the ALA was founded in 1876. However, efforts during the early years (1875 -1900) centred on the co-operative production of reference tools used by librarians.

The history of library co-operation in Great Britain can be traced back to 1902 when Sidney Webb addressed the Library Association on the co-ordination and development of library services in London. He questioned the independence of the London libraries and suggested the establishment of a combined catalogue (for publication) at a central office to assist librarians by avoiding the purchase of reference books already available at other London libraries.

In 1907 the librarian of Gravesend established a scheme in which some London public libraries exchanged their printed catalogues and agreed to lend books to one another. The printed catalogues of the initial co-operative scheme was replaced by card and sheaf catalogues (Jefferson 1966: 10-14).

Library co-operation was first mentioned in a South African journal in 1933: "Once the principle of coöperation [sic] and inter-library lending is accepted, we feel that this feature could become of mutual benefit to all participating libraries" (*Library Coöperation* [*sic*] 1933: 8). There were three sections to this feature (*Library Coöperation* [*sic*] 1933: 8):

- Accessions: although impossible to print lists of all accessions in all South African libraries, it was useful to know the location of very expensive material.
- Duplicates for sale: a place where libraries could dispose of unwanted books, pamphlets, official publications and incomplete periodical sets.
- Desiderata: a medium through which librarians were able to express their collection development requirements and advertise staff vacancies.

In the decades that followed, several authors mentioned the importance of co-operation. Varley (1941: 109-115) emphasised the importance of library co-operation in South Africa. He identified the distribution, rather than the provision of books as the most pressing need in South Africa, as

books were available to a small proportion of the public only. In 1958, Van der Riet (1958: 4-7) reported on the library resources of the various regions of the Union and suggested measures to improve co-operation between libraries. Gardner (1960: 31-35) toured the country and visited libraries. As the guest speaker at the South African Library Association (SALA) Conference, September 1960, he shared his impressions of library co-operation. The president of SALA made an urgent request for co-operation in his presidential address in 1961 (Robinson 1961b: 43) and in an article later that year, reported on the progress made since the conference (Robinson 1961a: 71-77).

One of the first co-operative projects in South Africa dates back to the early seventies. Duvenage (1977: 153-156) described the co-operative agreement of services and collection development between public libraries in the Vaal Triangle. The Vaal Triangle comprises the towns of Sasolburg, Vereeniging and Vanderbijlpark. A characteristic of these communities in the 1970s was the large number of immigrants due to the expansion of ISCOR in Vanderbijlpark and the Sasol Two project in Sasolburg.

The libraries agreed to develop their individual collections in specialised areas, for example Vanderbijlpark Public Library collected material on religion, economics, trade, business, mathematics, physics, engineering, architecture and European history. The library also collected recreational reading material for Dutch, Portuguese, Spanish and Greek immigrants. Members of the various libraries were allowed to borrow books from the other libraries free of charge.

Another co-operative project began in 1991 when the Academic Information Service of the University of Pretoria and the Division for Information Services at the CSIR agreed to co-operate to optimise their resources and to reduce operational costs, specifically with regards to periodical acquisitions (UP-WNNR Inligtings-vennootskap 1991: 14).

Neither of the co-operative efforts mentioned above was ever formally terminated, but interest steadily declined and at present[1] there is very little co-operative activity within the scope of the original agreements. Telephonic conversations with people currently involved in the institutions, indicated that reasons for the lack of interest in these agreements could be attributed to the following:

[1]During 2000 and 2001 the University of Pretoria and the CSIR's Division for Information Services initiated talks about closer co-operation and the whole process is still under investigation.

- Change in environment and priorities: change in the nature of their membership prompted the libraries in the Vaal Triangle to change their emphasis regarding collection development (Duminy 1999). The CSIR's Division for Information Services experienced a severe cut-back, and the University of Pretoria decided to concentrate on the acquisition of full-text databases (De Bruin 1999; Pienaar 1999).
- Differences in the financial status of the various institutions hampered further co-operation. One library in the Vaal Triangle computerised its lending function and this rendered any further co-operation practically impossible (Hamman 1999).
- A change in managers: the staff that initiated the projects had left the services of the institutions and was replaced by staff that did not consider co-operation as a high priority. Personality clashes also played a role (Du Plooy 1999).

The Cataloguing Network in Pietermaritzburg (CATNIP), another South African co-operative project, started in the nineties. The most striking feature of CATNIP is the fact that it owes its existence to the insights and initiatives of its librarians, and not to agreements between administrators and policy makers.

CATNIP originated from a number of developments in the Natal Midlands in the early 1990s. The University of Natal Library, Pietermaritzburg (UNP) had completed the retrospective conversion of its catalogue and had a database of 250 000 records. During this time there was a move afoot in the region to co-operate in the sphere of theological studies regarding aspects such as teaching, publication and provision of library material. Given the increasing stress on library budgets, this was particularly important. There was also an increasing realisation that the region contained many small libraries whose collections were barely known outside their parent organisations. Their potential to contribute to resource sharing and rationalisation was essentially constrained by human factors and the financial costs of computerisation to establish the links.

CATNIP was launched from within a group of libraries with common subject interests on the basis of instinctive feelings about the virtues of library co-operation. The Theological Cluster, comprising the School of Theology of the University of Natal, Pietermaritzburg, the Federal Theological Seminary (Fedsem) situated at Imbali, and St. Joseph's Theological Institute and Las Casas Dominican Community (both at Cedara), used the cataloguing and database management skills and computer hardware and software at the UNP Library to create a combined online catalogue for all theological and related material in the Pietermaritzburg region. The aim was to enable the different institutions to exchange material and co-ordinate acquisition policies. The

Evangelical Bible Seminary (EBSEMSA), Anglican House, and the Jesuits also joined the Theological Cluster. Since 1993, the Natal Society Library, the largest library in Pietermaritzburg, also started adding its records to the CATNIP database.

By the end of the 1990s, CATNIP had progressed towards its aim of documenting the collections of all Pietermaritzburg's libraries as a resource base for research, teaching and learning. Apart from the establishment of a centralised online bibliographic database and the exchange of material regionally, the greatest achievement of CATNIP has been the effective utilisation of computer and human resources.

From 1991 until 1998, CATNIP included a series of bilateral relationships between the UNP Library and various individual libraries. In 1998, at CATNIP's first general meeting, it was decided to set up an *ad hoc* committee to investigate a structure to enhance its identity and direction (Merritt 1998a: 21-26).

Thus, the concept of library co-operation in South Africa is not new, but in recent years the demand for formal co-operative arrangements and progress has increased. The resultant formation of library consortia is discussed in depth in Chapter Two.

1.3 BACKGROUND TO THE PROBLEM

Although co-operation in South Africa is not new, greater co-ordination is required, as indicated above.

1.3.1 Literature study

Essentially, the literature on academic library consortia and authority control can be divided into three categories, namely published sources, doctoral theses and in-house documentation.

1.3.1.1 Published sources in the library and information science discipline

Published sources (mainly journal articles) in the library and information science discipline: Articles usually argued either for or against co-operation or authority control, or described co-operative activities. Some of the articles attempted to evaluate co-operative activities and authority control. Reference to journal articles is made throughout this study.

1.3.1.2 Doctoral theses on library co-operation

The following doctoral theses on library co-operation, library consortia, authority control or union catalogues were found: nine doctoral theses in librarianship on academic library co-operation were identified through searches on the international database on OCLC. The first, by Harrar (1962), concentrated on co-operative storage warehouses in the United States. The second, by Thomson (1970) discussed a survey of interlibrary loan practices in academic libraries in the United States in the 1960s. Patrick (1972a) conducted an exploratory study of academic library consortia. From an analysis of questionnaire data collected from 125 academic library consortia in the United States, she described thirteen essential steps to be followed when initiating a consortium (Patrick 1972a: x).

During 1975, three Ph.D. theses on library consortia were submitted to universities in the United States. Lemke (1975) studied the major trends in consortia from 1940 to 1970 and conducted detailed case studies of five consortia. Wallace (1975) submitted a thesis on the analysis, usefulness and effectiveness of academic library consortia in the south-eastern states. In 1975 Adeyemi submitted the third thesis.

The purpose of his research was to:

- study the factors responsible for the present state of library co-operation in Nigeria
- establish the availability of the facilities required to affect a co-operative effort
- design a model of a co-operative programme for libraries in Nigeria (Adeyemi 1975: 9).

In 1982 Walker presented a thesis that reviewed the literature on interlibrary lending with regard to the participation of public school systems in library consortia. He presented specific descriptive data and nonparametric statistical analyses on the use of the Maryland Interlibrary Organization (MILO) by students, teachers and staff of the Howard County Public School System.

In 1984 Baughman conducted a survey study of the directors of academic libraries participating in academic library consortia. His aim was to provide a description of their roles in co-operatives and to assess the impact of participation on both their libraries and their own work.

Brown-Syed came to the conclusion that “regional library networks (consortia) continue to survive, and even to proliferate in the age of wide-area networking.” He explained this phenomenon through research for his thesis on the infrastructure of consortia and advances in computing and communications (Brown-Syed 1996: iii).

A search on the *Database on Current and Completed Research Projects*, part of the Nexus database of the Human Sciences Research Council (HSRC) showed that no studies on consortia had yet been submitted to South African tertiary institutions, although two were in progress concurrent with this study. M.N. Pieterse was investigating developments in the management of periodical collections in library consortia (M.Tech. Study), and B.S. Jalloh was investigating the feasibility of a library consortium in Swaziland (D.Litt. et Phil.).

In the specialised field of authority control, four doctoral theses had been completed overseas. The first, by Jessee in 1980, explored the concepts and implementation of authority control in an automated indexing system. Kim (1984) examined the relationships between libraries with East Asian collections in their name authority control practices and procedures, the librarian’s perceptions of online authority control systems, and the library’s catalogue integration procedures for conflicting headings. Smiraglia (1992) completed a thesis on authority control and the extent of derivative bibliographic relationships, and Garrett (1997) presented a thesis on the influence of authority control on recall and precision in an online bibliographic catalogue.

In South Africa, two studies on authority control had been completed. In a master’s study in 1987, Coetzee investigated the advantages of quality control in a library network and the methods by which it could be applied. She identified standards and authority control as the foundation of quality control (Coetzee 1987: iii). Snyman (1999) completed a D.Litt. et Phil. study on bibliographical authority control in South Africa. She conducted a critical analysis of the South African situation regarding the standardisation of South African names and developed two models for use in the standardisation of South African names.

The authority files of individual libraries were evaluated in two master’s studies. Van der Merwe (1980) evaluated the name authority file of the Rand Afrikaans University, and Krüger (1984) investigated the computerised authority files of the library service of the University of the Orange Free State.

As far as it could be determined the only doctoral study on union catalogues is that of Lepow (1985), who tested a method for identifying unique and duplicate bibliographic records in online union catalogues. The method utilises the sequential arrangement of MARC fields for comparing bibliographic records that contain the same title, or the same author and title.

1.3.1.3 Examples of in-house documentation

In-house documentation include Agenbroad's *System Design and Pilot Operation of a Regional Center for Technical Processing for the Libraries of the New England State Universities* ... (1968), the *Final Report of the MAS FILE-II Pilot Project of the Five Associated University Libraries* (1970), and Parker's *Feasibility Study for a Joint Computer Center for Five Washington, D.C. University Libraries* (1968).

Documents prepared in academic library consortia in South Africa include Van der Merwe's *Position Paper on SAMARC vs USMARC and UNIMARC,* (1996) and the *Authority Control Manual and Policy Guidelines for GAELIC Libraries,* prepared by Marais, Van der Walt and Van Eeden in 1998.

Larger academic library consortia that considered or engaged in large-scale computerised activities usually produced this category of material. The documents are mainly feasibility studies or design specifications for specific activities and are of an analytical and quantitative nature. Because they are seldom published, these documents are difficult to obtain, but the findings are sometimes included in journal articles.

The literature study revealed that there has been no study on participation in authority control on a union catalogue in a library consortium.

It is beyond the scope of this study to present a historical account of the development of each of the areas in which academic libraries have been co-operating. The intention is rather to

- define co-operation
- discuss factors that foster co-operation
- provide the reasons why academic libraries are co-operating
- outline barriers to co-operation
- indicate the kinds of activities in which academic libraries have been co-operating.

These issues provide the background required for the formulation of the problem statement.

1.3.2 Definition of library co-operation

Authors writing on library co-operation have not succeeded in providing comprehensive definitions of the concept. Cuadra (1972: 271) suggested that co-operation does not lack definition but is so well understood that explanation and clarification are not required.

Co-operation is defined in the *Oxford English Dictionary, second edition on Compact Disc* (1994, s.v. “co-operation”) as “... working together to the same end, purpose or effect”. This implies a need to establish full agreement among all participants on the exact aims and objectives of the proposed co-operation (Parker 1976: 7). Thus, before any form of co-operation can be considered, agreement should be reached on the vital question “What is our aim?” It seems that proposals for co-operation are put forward with no basis other than the vague mutual understanding of librarians at professional meetings. Sinclair (1973: 181) commented that librarians accept the concept of co-operation but find it much harder to practice than to preach. Martin, in her definition (1988: 131), stated clearly that co-operation could only succeed if it is perceived as beneficial to all parties involved.

In their definitions Reynolds (1974: 424) and Kaplan (1973: 139) attempted to distinguish co-operative activities from the everyday activities of librarians, whilst Batubo (1988: 517) defined co-operation as the pooling together of the resources of two or more libraries to satisfy user needs. Markuson (1979: 32) viewed library co-operation not only as an activity between two or more libraries to satisfy user needs, but also an activity to promote and enhance library operations.

Esterquest (1961: 72) defined library co-operation as any manifestation of a conscious endeavour by librarians to increase or improve library resources or services through joint action. Two or more libraries or institutions that are not part of a single administrative organisation need to be involved. Co-operation also included interaction and interdependence, and as McCarthy (cited in Blackburn 1971: 51-52) pointed out, it involved a relationship from which each partner was free to withdraw. It is this quality of being voluntary which distinguishes co-operation from other forms of interaction.

Hamilton and Ernst's definition (cited in Segal 1989: 86) embraced the philosophical basis of co-operation. They saw it as a means of mobilising total library resources to meet the needs of the user without regard to the type of library involved and without classifying the user as a public, school, academic or a special library patron. The aim was to assist all library users to utilise library resources and services more effectively.

In this philosophical scenario the ultimate concept of co-operation and the loftiest goal towards which library co-operative efforts could strive was that all the requirements of library users regarding work, education or recreational information and materials were considered and treated equally (Hamilton 1977: 3). Co-operation was seen as the most effective means for serving library users, and not merely a convenience for libraries and librarians.

Vann (1969: 12) was the first to identify technical services activities as a means of co-operation. She defined co-operation in technical services as follows:

> "cooperation in technical services has tended to be identified with centralized processing which is essentially a coined phrase combining two quite distinct concepts, processing and centralization ..."

Vann (1969: 12) identified technical services with the word processing, and provided a definition:

> "Processing designates services relating to acquisition and analyses of resources and recording of data for use of a library's public. It may encompass one or more of the following phases of service: selection (in an advisory or almost compulsory plan); acquisition/ordering (of all or certain kinds of material); analyses of content, descriptive and subject (whatever the technology employed); and finishing details (pocketing, pasting, etc.)."

Vann's definition merges the activities of the acquisitions and cataloguing departments of libraries into a set of related processes in a continuum - a trend in most libraries today.

Co-operation is a complex phenomenon and it is difficult to simplify the concept without risking distortion. Too much importance may be assigned to one aspect at the expense of another. For purposes of this study, library co-operation will be defined as the pooling of resources (not just information resources) of two or more libraries to satisfy user needs, with the provision that such pooling is mutually beneficial to all the participants.

Co-operation does not just happen. In the next sections four factors enabling co-operation are discussed and the reasons why librarians co-operate are provided.

1.3.3 Factors fostering co-operation

Lindenfeld (1984: 40-41) identified four factors that enable co-operation:

- Common needs or needs that could be filled by common effort are required. Co-operation takes a lot of time and effort and all participants should experience co-operation as something that has value (Wilding 2001: 2; Colaianni 2000: 2; Reed-Scott 1995: 68; Gherman 1988: 53; Martin 1988: 133). Self-interest is a good basis for co-operation.
- Each party should have resources that are needed and that could be utilised by another party. Such resources include money, staff, collections, or expanded accessibility in terms of hours and location (Dougherty 1989: 23; Paskoff 1989: 96-97; Schuman 1987: 36). Need, rather than size or budget should be the prime factor when judging the feasibility of co-operation.
- It has to be determined whether or not a clear delineation of responsibility can be defined. There is bound to be conflict when two or more organisations work together. A clearly identified understanding of the role of each participant could solve many of these differences (Atkinson 1987: 89).
- The willingness of libraries to adapt has to be ascertained. Sinclair (1973: 181) and Dougherty (1972: 1769) view this factor as very important. To ensure that co-operation works effectively, the policies and procedures of the various libraries involved need to be as uniform as possible. If libraries are not willing to change their local policies and procedures in the interests of co-operation, co-operation will not be effective.

1.3.4 Why do libraries co-operate?

According to Simpson (1990: 86-87) the three reasons why libraries co-operate are the following:

- Co-operation can enhance the quality of service that a library provides. A number of effective resource-sharing services can be offered to and by libraries that co-operate, for example national and/or international distribution of shared cataloguing systems, online searching of information retrieval databases, document delivery, and co-operative collection development (Reed-Scott 1995: 68; Molholt 1989: 84). In addition, participation in co-operative ventures may confer prestige upon the library and its librarians. Clearly then, libraries co-operate for the actual and perceived value of the programmes and services they share.
- Because of the altruistic nature of the library profession, the sharing of resources and professional collaboration is perceived as correct action. Brewer (1991: 141) and Simpson (1990: 87) view this rather emotional reason as highly important. Any co-operative effort has to produce results to provide its participants with a sense of accomplishment and involvement.
- Despite the local pressure on libraries to be self sufficient, librarians strongly believe in co-operation as a means of reducing the expenditure of individual libraries. Co-operative ventures have the potential to reduce costs through both economies of scale and resource sharing.

Lowrey (1990: 13) also identified three reasons why libraries should co-operate:

- no library has the resources to satisfy all the needs of its users
- co-operation will help provide the resources to meet those needs (Pinkerton 1984: 44)
- libraries have a democratic responsibility to minimise the gap between the information rich and the information poor (Heath 1989: 29).

Brewer (1991: 140-141) provides a more comprehensive list of reasons for co-operation between libraries. These are to

- improve services
- create new services
- share expertise
- facilitate staff development
- achieve together what cannot be achieved alone
- meet customer wants, needs and demands
- satisfy higher authority
- respond to government pressures to establish partnerships and joint ventures
- satisfy professional aspirations
- take account of the realisation that no library can succeed on its own
- counter the threat of budget cuts
- save money.

To view co-operation only as a means of providing the same service at less cost, or to see it as a moral obligation, is too simplistic. It is necessary to look further and to view co-operation as a means to maximise resources, extend the range of services, and improve service performance. It should be regarded as an opportunity to set and reach new objectives that might not have been achieved if libraries were unwilling to collaborate.

Having described the reasons why libraries participate in co-operative activities, factors that could prevent or sabotage co-operation need to be identified.

1.3.5 Barriers to co-operation

Bishop (cited in Woodsworth 1991: 40) pointed out that the attitude of people could make or break co-operation. Negative attitudes could arise from

- the custodial mentality of librarians
- fear of loss of autonomy
- clash of personalities
- jealousy and stubbornness
- inertia and indifference
- complacency and self-satisfaction
- unwillingness to experiment
- mistrust between libraries and librarians

- the assumption that each library has unique, rather than common needs and goals.

Despite wide acceptance of the notion that no individual library can claim the ability to provide for all its user needs from its own resources, progress towards formal co-operative agreements has been slow. The four main barriers to co-operation are identified below.

1.3.5.1 Loss of autonomy

Institutions often fear loss of autonomy (Wilding 2001: 3; Middleton 1983: 204; Gorman 1982: 166) and wish to retain their own catalogues and cataloguing systems, even if these are not cost effective or are cumbersome (Gatterman 1987: 19). It is no longer acceptable that libraries limit their participation to interlending activities. Institutions need to realise their interdependence and learn to co-operate in other fields as well (Galvin 1980: 289).

1.3.5.2 Differences between libraries

Because different libraries have different users with different needs, it may be difficult to reach a basis for co-operation. For example, the requirements of users of research libraries differ significantly from users of public libraries. If all parties are not fully committed it could be problematic to find common ground for co-operation (Wilding 2001: 3; Brown 1981: 437).

1.3.5.3 Lack of uniformity

A lack of uniformity regarding the bibliographic records created by different libraries could also become a barrier to co-operation. The lack of uniformity is not necessarily due to a lack of standards. Various librarians use their own levels of description and may interpret rules differently according to the requirements of their users. For example, academic library users need more extensive bibliographic information in the bibliographic record and more references in the authority record than users of public libraries (Brown 1981: 437; McCallum 1980: 378).

1.3.5.4 Costs

Shrinking budgets make it virtually impossible for libraries to be self-sufficient. However, co-operation also costs money. Telecommunication costs, consortium membership fees and computer workstations with access to networks all have cost implications (Gattermann 1987: 195; Middleton 1983: 204). It is therefore very important to be able to prove to governing bodies that services and products can be improved by co-operation (Brown 1981: 437).

The problem of unequal distribution of costs and benefits in library co-operation often discourage libraries from co-operation (Chiba 1989: 83; Line 1986: 3). Chiba verbalised the problem when he stated that:

> "unfortunately for academic libraries they inevitably tend to be net suppliers, and unless they are paid the full direct cost for their services ... they spend rather than save money by participation in cooperative schemes."

1.3.6 Co-operative activities

Libraries practice co-operation in many different ways and for different purposes. Although all instances of co-operation bear some resemblance, co-operation is still shaped by the combination of the institutions, circumstances and personalities involved. Over fifty years ago, Lowell (1942) described eleven types of co-operative activities, including

- interlending
- co-operative bibliographical projects
- indexing projects
- regional and national planning
- specialisation agreements
- regionalisation in higher education
- co-operation regarding various processes such as book binding
- library services under contract
- book storage centres
- consolidations and mergers.

Downs (1967: 163-183), McAnally (1951: 123-124) and Smith (1946: 124-130) subsequently suggested frameworks, and Lehman (1969: 491-497) extended the above list to fourteen. Any subdivision of the activities could only be arbitrary. For the purposes of this study, the eight general headings proposed by Fletcher (1991: 160-171) are used.

1.3.6.1 Co-operation in collection development

People who are not involved in libraries, usually present a clear case for co-operation between libraries with regard to the purchasing and the maintenance of book and periodical collections. They argue that libraries that are geographically close need not purchase highly expensive reference works or periodical subscriptions individually. Most attempts to co-operate in collection development have achieved only limited success (Munn 1986: 166). The reluctance or inability of users to travel even short distances to use material in another library, and restrictive accessibility rules regarding readers from outside the parent institution (Blackburn 1971: 54) are militating factors that hinder co-operation. However, developments in the field of electronics, for example scanning, have a positive influence. Further research is required and problems like copyright issues need to be resolved.

Co-operative efforts regarding the retention of specialist material have achieved success. A library in a consortium would for example agree to keep a specific title, or permanently stock a specific type of material on a designated subject area. To ensure constant availability to other libraries or institutions, it is imperative that libraries that have indicated their willingness to keep certain materials maintain these materials, even if they are no longer required by the holding library (Aufdenkamp 1992: 534).

Changes in the academic profiles of institutions, developments and diminution in subject fields, and changes in user profiles, leave scope for the permanent transfer of library books and periodicals between libraries. It has to be taken into account that this is not simply a matter of transferring the material, but that costs are involved for the removal of items from one catalogue and incorporating these into another.

1.3.6.2 Co-operation in interlending

The history of co-operation between libraries reveals a fundamental concern with interlending (Edmonds 1986: 4) because academic libraries need interlibrary access facilities to supplement their own resources (Culpepper 1984: 21).

The essential ingredients of an interlibrary loan are

- an identified and required text at the one institution
- an eager user at the other institution
- the willingness of both libraries to be of assistance
- a process of providing the item to the user and return it to the holding library.

The willingness of the lending library is often influenced by the rarity and the fragility of the item requested, the extent of local use and the stipulation of local policies. In some instances, where copyright allows, these problems may be overcome by providing copies rather than the original item.

The willingness of the library making the request and the eagerness of the user are influenced by the cost and promptness of the service (Dougherty 1978: 17). An efficient and reliable mail service, daily delivery services and fax machines could reduce the waiting period. When users require specific items, the inconvenience of obtaining these should be minimal and tolerable — whether the items are held in their local libraries, in libraries that are geographically close, or distant libraries anywhere in the world.

1.3.6.3 Bibliographic co-operation

Before useful movement of material between libraries can occur, it is necessary to be able to determine the holdings of each library and availability of the required item. From the viewpoint of the user, access to the holdings of other libraries, as provided by union catalogues is therefore the most visible and beneficial form of co-operation between libraries. The role of the union catalogue in library co-operation is discussed in Chapter Four.

Bibliographic co-operation also describes the facilitation of the transfer of bibliographic information between libraries, the examination of hardware, software and services provided by integrated library system suppliers and co-operation in the electronic transmission of information between libraries and the book trade (Edmonds 1986: 9).

Although bibliographic co-operation has been acknowledged as being important, much attention has been focused on related areas such as the development of integrated library systems. Co-operation with regard to bibliographic and authority records, the exchange of these records, and standardisation have progressed slowly and much more could be achieved in this area. Authority control as a way of bibliographic co-operation forms the basis of Chapter Three.

1.3.6.4 Co-operation in widening access to collections

In essence this means the availability of facilities to users from other libraries, either through limited access to the reference collection, or allowing the borrowing of material by individual users (Reed-Scott 1995: 69; MacDougall 1990: 155; Edmonds 1986: 8). Although these arrangements may appear simple, there are drawbacks. An example would be that increased use of a particular library by the users of another could add pressure on the host library with regard to seating, staff and photocopying facilities. Some libraries therefore, charge a service fee that may be waived for certain categories of users, such as doctoral students of other universities.

1.3.6.5 Co-operation in library staff training

In recent years an increasing awareness of the importance of continuing education and training of staff at all levels has been recognised to increase efficiency and effectiveness and to prepare staff for promotion. The field of staff training and development allows great scope for co-operation between libraries (Edmonds 1986: 13). The development of courses is expensive, and co-operation with other libraries in this regard not only allows considerable savings but also enhances the training experience through the interaction between staff of different libraries.

Staff training may be of a general nature, such as courses on personnel or financial management, team building, interviewing techniques and time management. Specialists

on topics such as authority control for uniform titles, the use of scientific reference works, sources of economic statistics, and the cataloguing of religious works could provide some of the training.

1.3.6.6 Co-operation in library management

Librarians are becoming increasingly aware of the importance of communicating with their peers. Senior management, for example, find it beneficial to meet with their counterparts of other libraries to discuss problems, provide mutual support, and share new ideas (Edmonds 1986: 9).

Presenting a united front is important for collaboration on a library management level. Informed pressure groups established to lobby for library interests are the most effective way of librarian co-operation and is achieved through the exchange of knowledge and experience at conferences and through committees. The founding in 1975 of the Inter-University Library Committee (IULC) by the Committee of University Principals (CUP) established an organised basis for co-operation among university libraries in South Africa (Hooper 1989: 125; Gerryts 1987: 257).

Information exchange between participating libraries need not necessarily involve large expenditure or commitment. It could make a valuable contribution to all concerned through the provision of mutual assistance and the exchange of working papers, minutes, statistics, etc. (MacDougall 1990: 155-156).

It could also only be beneficial to all libraries if groups of purchasing officers of consortia collaborate to enable bulk purchasing of items commonly used and to pressurise suppliers to provide the best possible prices and services.

1.3.6.7 Co-operation in library automation

Joint ventures in research and the purchasing of library computer systems could allow the establishment of a union catalogue and co-operative cataloguing. Apart from co-operative cataloguing, the exchange of experience between users of the same system is beneficial. User groups representing different libraries could pressurise suppliers of library systems to upgrade or change such systems to make them more user friendly.

1.3.6.8 International co-operation

Informal relations and contacts with similar libraries in other countries is nothing new. Since 2000 South Africa has become a stronger partner in the international library community and even greater co-operation may be expected between South African libraries and libraries elsewhere in the world. Co-operative agreements could also be made between South African libraries and libraries in the rest of Africa.

A look at consortia as a way to co-operate follows the general discussion on library co-operation above. Library consortia are discussed in detail in Chapter Two, but a brief overview of consortium activity in South Africa at this stage is provided below.

1.4 LIBRARY CONSORTIA IN SOUTH AFRICA

Until the CUP founded the IULC in 1975, library co-operation in South Africa was practised on an *ad hoc* basis. The aim of the IULC was to co-ordinate or organise co-operation between university libraries (Gerryts 1987: 257). In 1986 the IULC appointed a team to investigate more effective resource utilisation and co-operation among university libraries. Five key areas of information provision were identified:

- collection management
- infrastructure
- document delivery
- financial resources
- cataloguing and retrieval tools (Gerryts & De Bruin 1988: 266).

Task Groups were appointed to investigate each problem area and make recommendations to the IULC.

After their investigation of co-operative collection development and document delivery, Gerryts and De Bruin (cited in Hooper 1989: 125-126) recommended a formal agreement between participants. Such an agreement would ensure that individual and joint responsibilities were defined at a local, regional and international level. The agreement had to be accepted and adhered to by all members and make provision for an effective

management mechanism. Gerryts and De Bruin (cited in Hooper 1989: 126) defined eight criteria for achieving agreement amongst libraries that wish to co-operate. These are:

- Consensus regarding the process.
- A formal agreement in terms of the process.
- Formulating a policy through attracting and involving a number of relevant institutions on a national level.
- A body of members with a controlling and co-ordinating function to promote and protect their interests.
- Voluntary participation in the co-operative infrastructure.
- Binding contractual obligations to the terms of the co-operation agreement.
- Consideration of examples of similar agreements from other countries when drawing up an agreement.
- An infrastructure within which member libraries are able to participate in collection management on a national level, document delivery, selection, retrieval, and resource allocation.

These criteria provide a framework for libraries that wish to co-operate in negotiations. Since the publication of this report, various library consortia have been established. Because authority control procedures for various types of libraries are different, the remainder of the study concentrates on academic libraries and their authority control procedures. Academic library consortia already in existence are discussed briefly below.

1.4.1 Cape Library Consortium

In 1992, five Western Cape tertiary education institutions were seeking ways of developing closer co-operation. Owing to budget cuts, cancellation of serial subscriptions and staff reductions, none of these organisations were in a position to meet the growing needs of the academic communities that they served.

The Vice-Rectors' Group of the Western Cape Tertiary Institutions Trust (WCTIT) initiated the idea of co-operation and presented a proposal for funding to the Ford Foundation. The Ford Foundation team who visited the libraries in the region during 1992 was in favour of the formation of a library consortium, but believed that such a consortium needed to be

expanded through joining forces with other libraries in the region to become a major community resource (De Kock 1997: 136-137; Coetzee 1996: 8; Viljoen 1993: 1).

As a result, the Western Cape Library Co-operation Project (WCLC Project) was initiated in 1993. The following institutions were involved:

- University of Cape Town
- University of the Western Cape
- University of Stellenbosch
- Cape Technikon
- Peninsula Technikon.

In 1994 the WCLC changed its name to the Cape Library Consortium (CALICO), administered by the WCTIT. According to the Western Cape Tertiary Institutions Trust (1995: 1) the vision of CALICO is:

> "To promote information literacy and economic development in a form users want, when, and where they need it. Inherent in this vision is the right of all citizens to be able to access, evaluate, and effectively use information that can contribute to improving their quality of life and economic well-being. Accordingly, the vision embraces the concept of a single Western Cape Library collection that is housed at different locations with all resources accessible to anyone who has need of them."

Together, representatives from each organisation formed the following working committees (De Kock 1997: 137):

- Document Delivery Working Group
- Co-operative Journals Project
- Van Service Committee
- Team Building Committee
- Working Group on a Shared Automated System
- Committee on a Binding Policy
- Committee on Consortium Structure
- Co-operative Staff Training Sub-committee.

1.4.2 Gauteng and Environs Library Consortium

In 1995 the University of the Witwatersrand Library approached the Andrew W. Mellon Foundation (Mellon Foundation) to fund a new library system. Mellon's response was that it would prefer to support new library software for a consortium of libraries, rather than a single library, with the aim to encourage regional co-operation and resource sharing. At the beginning of 1996, under the auspices of the Foundation of Tertiary Education Institutions in the Northern Metropolis (FOTIM), senior administrators, library directors, and information technology directors met with representatives of the Mellon Foundation. A planning grant was made available and the Gauteng and Environs Library Consortium (GAELIC) was founded. (Rowley & Slack 1999: 34; Edwards 1998: 16; De Kock 1997: 137-138; *Multi-million Volume Library* ... 1996: 1,5).

GAELIC's membership currently stands at sixteen and comprises the following institutions:

- Technikon North West
- Technikon Northern Gauteng (TNG)
- Technikon Pretoria
- Technikon Southern Africa (TSA)
- Technikon Witwatersrand (Wits Technikon)
- Vaal Triangle Technikon
- Medical University of Southern Africa (MEDUNSA)
- Potchefstroom University for Christian Higher Education (PU for CHE)
- Rand Afrikaans University (RAU)
- University of South Africa (Unisa)
- University of Pretoria (UP)
- University of the North West
- University of the Witwatersrand (Wits)
- Vista University (Pretoria campus)
- University of Venda
- University of the North

The Memorandum of Agreement (1996) states the vision of GAELIC:

> "To create a virtual library with local service interfaces, forming part of a global community for clients in Gauteng and its environs. This will be achieved by a group of autonomous tertiary education information services, using technology and linked networks, which accept the need to explore co-operation and collaboration by consensus as a response to the formal educational, training and information needs of the country."

GAELIC's mission was formulated to fully utilise and develop the information resources of the region to promote education, research and lifelong learning among its clients.

Initially the following task groups with sub-groups, responsible for projects and investigations, were established (Edwards 1998: 16-18; De Kock 1997: 138-139; *Multi-million Volume Library* ... 1996: 5):

- Systems Task Group, responsible for researching a co-operative library system for GAELIC members, setting up system evaluation workshops, and organising consultancy for advice on the system. This Task Group was also tasked to set up final agreements and business strategies between the parties.
- Resource Sharing Task Group with sub-task groups for
  - document supply
  - joint acquisitions
  - union list of current serial titles
  - human resources.
- Another task group emerged from this group, namely the GAELIC Cataloguing and Technical Services Workgroup (GCats), which has several sub-task groups. These sub-task groups were established to deal with specific responsibilities to ensure a clean union catalogue. The name was changed to the Cataloguing and Technical Services Workgroup.
- Networking and Infrastructure Task Group, responsible for the establishment of an information technology infrastructure to enable resource sharing.

Initially GAELIC adopted a highly democratic approach. All library directors were, chairpersons of task teams, and representatives from stakeholders such as Sabinet Online and the National Library of South Africa were represented on the Steering Committee. Within this group, care was taken to ensure consensus and commitment. In the early

stages of GAELIC this was imperative to ensure that everybody was committed and that larger, more established institutions did not take over or dominate the smaller, disadvantaged institutions.

All of the above served GAELIC well during the first years. In mid 1998, at a strategic planning session it became clear that the focus needed to be sharpened and the vision redefined to meet new challenges. A new structure and strategy was agreed upon, with the Strategic Management Team providing leadership and vision and overseeing the activity of the consortium. Teams were established to focus on (Edwards 1999: 126-127):

- Business Management
- Information Resources
- Human Resources
- Information and Communications Technology.

These teams currently include experts or people who wish to develop specific skills. With the exception of the Human Resources Focus Area Team, which is fully representative of all members, participation of all member institutions is no longer expected or recommended, but is left at the discretion of individual library directors. Each focus area may form working groups to take care of operational areas or projects. The Business Management Unit, for example has working groups in the area of finance, marketing and management information.

1.4.3 Free State Library and Information Consortium

Under the name Free State Library and Information Consortium (FRELICO), the University of the Free State's proposal to the Mellon Foundation in the United States resulted in a grant to launch the planning phase of a resource sharing project. A delegation consisting of vice rectors or heads of organisations in the Free State met in August 1996 to convey information about the planning phase and discuss the possibility of participation and commitment of their organisations (De Kock 1997: 140).

The following institutions were included in the planning stage (FRELICO 1997: 51):

- Bloemfontein Public Library
- Free State Directorate for Information Services and Heritage

- SASOL Technical Library Services
- Technikon Free State
- University of the North, Qwa-Qwa campus
- University of the Free State
- Vista University, Bloemfontein campus
- Vista University, Welkom campus.

FRELICO's mission is to expand access to informational, research and study materials in the Free State through electronic means. The goal is to develop a comprehensive plan for electronic networks to provide mutual and enhanced access to users of participating institutions (Free State Libraries Project 1996).

To achieve this goal, five areas for potential co-operation were identified and working groups were formed to address these (FRELICO 1997: 52):

- shared computerised regional database/catalogue
- document delivery systems
- co-operative journals project
- information literacy programmes
- training on technological issues related to information sciences.

1.4.4 Eastern Seaboard Association of Libraries

The first meetings of the Eastern Seaboard Association of Libraries (ESAL) took place in 1994 under the auspices of the Regional Institutions Co-operative Project (RICP). The RICP became the Eastern Seaboard Association of Tertiary Institutions (ESATI) (Merritt 1998b: 27).

ESAL comprises the eight libraries in tertiary education of the seven institutions in KwaZulu/Natal (Rowley & Slack 1999: 34):

- Natal Technikon
- M L Sultan Technikon
- Mangosuthu Technikon
- University of Zululand
- University of Natal, Durban

- University of Natal, Pietermaritzburg
- University of Durban-Westville.

The mission of ESAL (cited in Merritt 1998b: 27-28) is:

> "... to coordinate the resources of all the tertiary institution libraries on the eastern seaboard in order to develop a single resource base that will underpin teaching, learning and research in the area and in turn contribute to the national bibliographic network. In short, this means the maximum use of library resources within higher education both regionally and nationally, tighter integration of libraries into the academic process and the enhancement of the quality of research."

1.4.5 South Eastern Academic Libraries System

The South Eastern Academic Libraries System (SEALS) was formed in 1989 to establish co-operation and resource sharing between members. The initial set-up was not based on a structured agreement and in 1996 members decided to embark on a more formal co-operative project (De Kock 1997: 141-142).

The following institutions form part of SEALS (Rowley & Slack 1999: 34):

- Rhodes University
- University of Port Elizabeth
- University of Fort Hare
- University of Transkei
- Port Elizabeth Technikon
- Border Technikon
- Eastern Cape Technikon
- Vista University, Port Elizabeth campus.

The literature survey showed that bibliographic co-operation has been acknowledged as being important, but attention has often been focused on the development of integrated library systems. During the development of academic library consortia in South Africa, most consortia acknowledged the importance of resource sharing and a shared catalogue,

but there is little evidence of a concern with authority control as the foundation of quality control.

1.5 FORMULATION OF THE PROBLEM

The idea of academic library consortia has become more acceptable and an increasing number are being established. Authority control is recognised as an important aspect in all libraries and may be regarded as the foundation of quality control. The authority file provides structure within a catalogue and ensures that headings within the catalogue are consistent and unique (Aschmann 2003: 34). It is also an expensive cataloguing activity (Maxwell 2002: 6-8) and it is therefore surprising that it is rarely seen as a means of co-operation. Library consortia in South Africa concentrate on the development of integrated library systems, resource sharing, document delivery, etc., but show little concern with authority control. A cost-effective way of exercising authority control is to construct a union catalogue, and to create a central structure from which libraries that do not have the expertise can request an authority record. It will be helpful to academic library consortia, because there are hardly any guidelines available in the literature.

The research problem can be formulated as the following question:

How can academic library consortia in South Africa exercise authority control as effectively and speedily as possible through a central structure?

Leedy (1997: 6) states that the problem statement can be divided into sub-problems. In order to understand the context in which a solution will be selected for the research problem, the following questions will be answered:

- What are the role and functions of a union catalogue in an academic library consortium?
- What is the cost of authority control in South Africa?
- Within which kind of structure can authority control in an academic library consortium with a union catalogue be performed effectively and speedily?

As background to these subproblems the development of academic library consortia and the principles of authority control will be considered.

1.5.1 Motivation for the study

Cataloguing, including bibliographic description and authority control, is the most expensive and time-consuming process in academic libraries (Maxwell 2002: 6; Garrison 1994: 8). It would therefore be cost-effective and save time if records created by one library could be utilised by as many libraries or networks as possible, provided that these records are created according to national or, preferably, international standards. To promote participation in co-operative cataloguing programmes, reasonable standards, effective training and quality control measures need to be in place (Gattermann 1987: 24), but these aspects do not form part of this study. Two vehicles for the sharing of authority records are available: bibliographic databases (as discussed in Paragraph 4.2.2.2 (b)) and union catalogues (Chapter 4). This study will concentrate on union catalogues.

The prime motivation for the development of a union catalogue should be that a consortium with a union catalogue has the facility to access holdings of all the consortium members in a single collection (Cochenour & Rutstein 1993: 36). A union catalogue can also form the basis of many other co-operative projects, for example resource sharing, retrospective conversion projects (Mowat 1996: 200), interlending and collection building opportunities (Ratcliffe & Foskett 1989: 7-8). Extensive library co-operation and sharing of electronic information resources is virtually impossible unless all consortium members have automated facilities and are linked via a union catalogue (Hargrave 1995: 92). This study will focus on the contribution of authority records to a union catalogue as a way of co-operation, but other methods to support effective authority control will also be investigated.

1.5.2 Methodological approach

The study comprises a literature survey, supplemented by an empirical study on authority control in library consortia with a union catalogue.

The purpose of the literature study is to examine research in the fields of academic library consortia, union catalogues and authority control. The source literature can be divided into three categories:

- references to journal articles are plentiful and are used throughout this study.
- nine doctoral theses were identified on academic library co-operation; five doctoral theses and three master's dissertations focused on authority control, and one doctoral study on union catalogues was found.
- in-house documentation that are difficult to obtain.

The literature study revealed that there has been no study on participation in authority control on a union catalogue in a library consortium. The literature found on academic library consortia will be used in Chapter Two. Chapter Two contains information on authority control and union catalogues are covered in Chapter Four.

The empirical part of the study is exploratory, rather than experimental. An exploratory study involves seeking what is, rather than predicting relationships to be identified. According to Babbie (1998: 36-38) and Mouton (1996: 38-40) the purpose of an exploratory (or qualitative) study is to discover or explore significant variables in the field situation and to discover the relationships among these variables. A qualitative study seems most appropriate, because the purpose of the study is to describe and explain authority control within an academic library consortium using a union catalogue. The outcome of the study would be a structure within which authority control can be done as speedily and cost effectively as possible.

There will be two empirical studies:

- practices in academic library consortia within the United States.
- cost analysis to determine the cost of creating and changing authority records within academic library consortia in South Africa.

Data will be collected through a questionnaire sent to academic library consortia in the United States. Even though questionnaires are usually seen as a method used during quantitative research (Leedy 1997: 106), it can be used as data collection method for qualitative research. The United States can be seen as the leader in the field of authority control. It is therefore necessary to explore authority control practices within academic

library consortia in the United States. The advantages and disadvantages of questionnaires as a research tool will be discussed in Chapter Six.

The second empirical study is to determine the cost of creating and changing authority records in academic libraries in South Africa. Since 2000, bibliographic and authority records could only be added to SaCat via OCLC (Paragraph 5.4.1) in order to ensure that only records of a high quality were loaded. The WorldCat database on OCLC provides access to a large number of high quality authority records, but the file is closed. That means only NACO participants may create or change authority records. South African libraries were faced with two options. To

- create authority records not available on OCLC via in-house library systems, or to
- become NACO participants and create authority records on OCLC.

The purpose of the cost study is to compare the cost of these two options.

Information obtained from the empirical studies will be used to determine the development of academic library consortia, to confirm the importance of authority control and the role and functions of a union catalogue and the cost of creating and changing authority records in South Africa, in order to choose a system within which authority control can be performed effectively and speedily.

A union catalogue can be seen as a way of co-operation in authority control within an academic library consortium. Authority records created within a consortium, are available to all the consortium members through the union catalogue, but it is a partial solution. Not all the libraries within the consortium have the expertise to create new authority records. If an authority record is not available in the union catalogue, and the library do not have the expertise to create a new record, they are forced to go without the record. Only a centralised process of authority control within an academic library consortium using a union database can solve the problem.

1.6 TERMINOLOGY

The following definitions are provided to avoid confusion. Some of the terms are discussed in greater detail in later chapters where relevant.

1.6.1 Academic library consortium

According to De Lanoy and Cuadra (1972: 1-2), an academic library consortium should comply with the following criteria:

- More than half of the consortium libraries should be academic.
- The participating institutions should be autonomous.
- Two or more libraries need to be involved voluntarily, and activities should extend beyond the traditional interlending function.
- If the library consortium is part of a higher level and multipurpose higher education consortium, it needs to be a separate entity.
- The consortium should have developed beyond the exploratory stage - the group should have declared itself a co-operative entity and should at the very least be planning joint activities.
- The consortium should be organised to pursue activities to benefit all its participants.

1.6.2 Access points

Keenan and Johnston (2000: 2) defined an access point (sometimes called entry point) as:

> "the index term or heading in an index, catalogue or database, which is used to identify specific records or entries in a file. Examples are an author's name, subject term, classification code, etc."

1.6.3 Authority control

Authority control refers to the control of index headings or access points through the use of a list of controlled or preferred terms to maintain consistency (Keenan & Johnston 2000: 13). Authority control is discussed fully in Chapter Three.

1.6.4 Bibliographic control

Bibliographic control is a general term used to describe a range of bibliographic activities. It includes standardisation of bibliographic descriptions, distribution of union catalogues, etc. (Keenan & Johnston 2000: 2).

1.6.5 Collection development

Keenan and Johnston (2000: 49) defined collection development as: “planning material acquisition to meet users’ needs in both the short- and long-term future”.

1.6.6 Information technology

Information technology or IT refers to the “acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by means of computers and telecommunication” (Keenan & Johnston 2000: 137).

1.6.7 Interlending

Interlibrary loan (ILL) or interlending is the process of lending an item by one library to another (Keenan & Johnston 2000: 141).

1.6.8 International Standard Bibliographic Description (ISBD)

International Standard Bibliographic Description is an international convention for the description of documents (Keenan & Johnston 2000: 14).

1.6.9 International Organization for Standardization

The International Organization for Standardization (ISO) is a body that attempts to establish international standards and to help co-ordinate national standards (Keenan & Johnston 2000: 14).

1.6.10 Internet

The Internet (or web) is an amalgamation of inter-related computer networks using the

protocol that permits electronic communication on a global scale. The web started in 1969 as a single network in the United States Department of Defence Advanced Research Projects Agency Network (ARPAnet) to allow researchers in defence-related areas to share distributed hardware and software resources. In the early 1980s the original ARPAnet was split into two. The section relevant to this study became known as the Defence Advanced Research Projects Agency (DARPA) Internet, subsequently "the Internet". Gradually, links were made between the Internet and existing networks for wider research and for academic communities (*Harrod's Librarians' Glossary* ... 2000: 397-398).

1.6.11 Library consortium

A library consortium is a formal association of a number of organisations with agreed goals and objectives. Services may vary, but often comprise collection development, interlibrary lending, co-operative cataloguing and networking (Keenan 1996: 143; *Harrod's Librarians' Glossary* ... 2000: 178).

1.6.12 Library network

A library network is a group of libraries with separate computers and telecommunication links through which the group can exchange information and share resources (*International Encyclopedia of Information* ... 1997: 315; Keenan 1996: 107).

1.6.13 Online Public Access Catalogue

An Online Public Access Catalogue (OPAC) is a "catalogue where information is stored on a database loaded in a computer which can be used via a remote terminal directly by a user" (Keenan & Johnston 2000: 183).

1.6.14 Union catalogue

A union catalogue contains not only a listing of bibliographic records from more than one library, but also identifies the location and holdings of the different libraries (*International Encyclopedia of Information* ... 1997: 451).

1.7 OUTLINE FOR THE REST OF THE STUDY

Chapter Two concentrates on the development of academic library consortia. ”Library consortia” is defined, and organisational factors that have been driving libraries toward increased co-operation are discussed, followed by different models or types of consortia. Although there are no accepted standards for consortia, all the successful consortia throughout history have certain noteworthy characteristics in common. One of the activities within a consortium, lending itself for co-operation, is authority control.

In Chapter Three, attention is focussed on authority control. After defining the different terms associated with authority control, the role of authority control within the library catalogue is discussed. After a discussion of the advantages, the different users of authority files are mentioned. International standardisation in authority control and recent developments in authority control are followed by a section on authority control in South Africa. Role players are identified and specific problems discussed. Since authority control is expensive, the advantages should outweigh the costs involved. It is therefore important that authority records be used as widely as possible. One of the vehicles for the effective use of authority records is a union catalogue.

In Chapter Four, the union catalogue and the virtual union catalogue is investigated. Z39.50 and its role in the virtual catalogue are discussed. The benefits of Z39.50 and problems experienced with its uses are mentioned. Union catalogues allow for better, faster and cheaper authority records, but it will be necessary to co-ordinate activities and maintain the union catalogue within the consortium.

It was necessary to determine the cost of authority control in South Africa, because the information is not available. The results of the unit cost study of authority control in South Africa are discussed in Chapter Five. That includes an explanation of the background of authority control in South Africa that precipitated the study and description of the methodology and procedures followed during the cost calculation. The results of the cost study are compared with other costs studies documented in the literature.

Authority control is a highly-developed skill in the United States. In order to learn from their experience, a Questionnaire was sent to university libraries in the United States during October 2002. In Chapter Six, the Questionnaire results were analysed, interpreted and the findings presented. The results obtained in Chapter Six will be used for the development of a proposed Central Office for Authority Control to co-ordinate authority control in an academic library consortium in South Africa in Chapter Seven. The last

chapter contained conclusions and recommendations, and topics for further studies are recommended.

CHAPTER 2

ACADEMIC LIBRARY CONSORTIA

2.1 INTRODUCTION

Library co-operation was discussed In Chapter One and defined as the pooling of resources to the mutual benefit of all participants. The establishment of consortia was one way to co-operate and was initiated in the United States during the seventies and in South Africa during the nineties. Because this type of co-operation is formal and structured it ensures that all partners contribute and benefit equally.

This chapter is included as background to the context, namely academic library consortia in which authority control will be carried out. The term consortium is defined in this Chapter and factors that motivate libraries to form consortia are described. Various forms of library consortia are identified. Although there are no accepted standards for success in consortia, six characteristics of successful consortia are identified and the various functions of consortia are discussed. It is emphasised that membership of a consortium should enable participants to fulfil their functions more effectively than when working individually. A description of the international developments in the field of library consortia, and a summary concludes this Chapter. Insights gained from this discussion will be used to, in addition with data collected from the cost study discussed in Chapter Five and the Questionnaire sent to the academic library consortia in the United States (analysed and interpreted in Chapter Six) propose a solution for the research question.

2.2 DEFINING ACADEMIC LIBRARY CONSORTIA

“Consortium” and the plural form “consortia”, like many other words used in library science, are derived from Latin (*Oxford English Dictionary, second edition* ... 1994, s.v. `consortium`).

The word “consortium” was first used in the seventeenth century to refer to the association and fellowship between husband and wife, that is each being a “consort” of the other. This meaning still applies in terms of law. The use of the term for “association” or “partnership”, the more common definition, was first used in the 1820s. It was not until the 1920s that it

became relevant in manufacturing and banking terms (*Oxford English Dictionary, second edition* ...1994, s.v. `consortium`).

In the modern sense, consortium can be defined (*Merriam-Webster's Collegiate Dictionary* 2001, s.v. 'consortium') as:

> "an agreement, combination, or group (as of companies) formed to undertake an enterprise beyond the resources of any one member."

During the 1950s and 1960s the term was first used in the field of science and education. With Patrick's benchmark report (1972b), the term consortium was established in the library lexicon. It is strange that the renowned library science reference work *International Encyclopedia of Information and Library Science* (1997) does not provide a definition for the term consortium, neither does Watters in the *Dictionary of Information Science and Technology* (1992). *Harrod's Librarians' Glossary* ... (2000: 178) provides a description of library consortia rather than a definition.

The only identified definition of a library consortium in a library and information science dictionary, is the one supplied by Keenan in the *Concise Dictionary of Library and Information Science* (1996: 143):

> "number of organizations, usually in a specific geographical area with agreed goals and objectives."

In his definition, Lemke (1975: 9) stated that a consortium should consist of at least three or more members:

> "a voluntary formal organization of three or more member institutions implementing a number of programs and with required annual contributions or other tangible evidence of long-term commitment of member institutions."

Twiest and Badke (1992: 64) simply defined a consortium as a "coalition, an association, a fellowship, or a partnership".

Hirshon (in Dorner 2001: 115) defined a library consortium as:

> "any group of libraries that are working together toward a common goal, whether to expand cooperation on traditional library services (such as collection development) or electronic information services."

Jalloh provided the most comprehensive definition of a library consortium (2000: 169) as:

> "a formal association of libraries, not under the same institutional control, but usually restricted to a geographic area, number of libraries, types of materials, or subject interest, that is established to develop and implement resource sharing among members. The objective of library consortia is to control and reduce information costs, to improve resource sharing, to develop a network information environment, and to share licensing with each other."

This study focuses on academic library consortia. The definition of an academic library consortium used by the researcher in this study is:

> "a formal association of libraries associated with academic institutions not under the same institutional control who implemented a number of co-operative projects or programmes that indicate long-term commitment."

Some background information on the historical development of consortia around the world is provided below.

2.3 HISTORICAL DEVELOPMENT OF ACADEMIC LIBRARY CONSORTIA

The United States of America may well be regarded as the birthplace of library consortia. The Americans have a tradition of collaboration and resource-sharing and are world leaders in the formation of consortia. One of the earliest academic library consortia was the Triangle Research Libraries Network, formed in 1933 by the presidents of the University of North Carolina and Duke University, who established the Committee on

Intellectual Cooperation. North Carolina State University and North Carolina Central University joined the consortium a few years later. The close proximity of the two campuses of the initial members was one of the reasons why The Triangle Research Libraries Network was established. All four current members are located in the state of North Carolina (Triangle Research Libraries Network homepage (2001) http://www.trln.org).

Even though very little published information about consortia was available, American library consortia continued to develop. A nation-wide study commissioned by the United States Office of Education in 1972 resulted in the first listing of consortia in *The Directory of Academic Library Consortia* (Bostick & Dugan 2001: 128).

A book by Ruth Patrick, *Guidelines for Library Cooperation: Development of Academic Library Consortia*, published in 1972 also resulted from this research. Patrick's book (1972b: 2) discussed the concept of co-operation between academic libraries in the United States and identified 125 academic library consortia of which most (90%) were established after 1960. She also noted that many library consortia resulted as part of broader academic co-operative activities.

In the 1960s and 1970s, motivated by the advent of the computer and the increasing automation of libraries (Bostick & Dugan 2001: 128), the development of library consortia gained impetus in the United States. As a result, sharing resources became feasible and provided further motivation for the formation of consortia. At that stage resource sharing enabled students of one university to use the collections of another. In many cases lending privileges were included in the agreements and the concept of multi-type co-operation became common. Multi-type co-operation meant that libraries of different types worked together to form a co-operative entity. During this period, the focus was on access to material, rather than on ownership.

A study by Hawthorn (Hawthorn, Frey & Roy 1999: 416) found that between 1996 and 1998 consortium development throughout North America gained increased impetus once again. Hirshon (2001: 1) calls the nineties "the consortial fat years." The two main reasons for this rapid development of consortia after a slow period in the 1980s was

- the advent of electronic serials databases

- The Library Services and Technology Act signed in 1996, which made provision for Federal State-based funding for co-operation among libraries, and for established consortia to acquire and share computer systems and communication technology.

Although few studies on the development and history of library consortia in countries other than the United States exist, the literature on individual consortia is extensive. For example, the journal *Information Technology and Libraries* published special issues titled *Library Consortia Around the World* in September 1999 and June 2000. Anglada (1999: 139-144) discussed the Consortium of Academic Libraries of Catalonia (CBUC), whilst Adler (1999: 135-138) described the history of MALMAD (Israel Center for Digital Information Services) as an example of university library co-operation in Israel. Friend (1999: 145-148) used the Consortium of University Research Libraries (CURL) as an example to discuss co-operative purchasing by library consortia in the United Kingdom, and Marshall (1999: 130-134) discussed Novanet Inc., a consortium of post-secondary education institutions in Nova Scotia, Canada.

In June 2000, Part 2 of *Library Consortia Around the World* was published. Once again, the emphasis was on specific library consortia. Longji, Ling and Hongyang (2000: 66-70) discussed the China Academic Library and Information System (CALIS), the most important academic library consortium in China, and Giordano (2000: 84-89) discussed digital resource sharing amongst library consortia in Italy. The formation of consortia in Italy is fairly recent and not widely spread. Cutright (2000: 90-95) discussed the small, less structured library consortia that exist amongst the different islands of the Federated States of Micronesia. Micronesia comprises 2 200 volcanic and coral islands spread throughout 3.2 million square miles of Pacific Ocean. Barrionuevo (2000: 96-102) discussed the Catalonia Consortium of University Libraries, University Libraries Consortium of the Madrid Region, Galician Libraries Consortium and the Andalusian University Libraries Consortium as examples of library consortia in Spain.

King (in Rowse 2003:3) has pointed to interesting differences between United States and non-United States consortia:

- United States consortia often have a multiple function role, whilst those arising more recently in Europe were predominantly developed for the purpose of electronic site licensing.

- United States consortia tend to be bigger (with an average of 182 members) than their European counterparts (on average 83 members).
- The overall United States budget may be greater - averaging $4.5 million for a United States consortium. But, the average budget per member is lower for United States consortia, averaging $52 000 per member, as compared with $64 000 per member outside the United States.
- Consortia internationally share some similar characteristic: all have a high academic membership (around 90%) and around half of all consortia are multi-type, that is, they serve at least two different types of library. Non-United States consortia are more likely to include special libraries within their membership, while United States consortia are more likely to serve school and public libraries.

After a six-month study of co-operation among small academic libraries, Lehman (1969: 492) wrote:

> "Far too much of the literature either expounds upon the great possibilities for cooperation or outlines with magnificent detail what consortia intends to accomplish. Too few define clearly what progress has been made, what the price tag is, what limits there are, ..."

It seems as though not much has changed in this respect.

Keeping the historical developments in mind, factors leading to the formation of consortia are discussed below.

2.4 FACTORS LEADING TO THE FORMATION OF CONSORTIA

Since the 1990s, key organisational factors have been driving individual libraries and consortia toward increased and more formal co-operation (Allen & Hirshon 1998: 36-37).

2.4.1 Economic competition and politics

Libraries are facing increasing economic pressures and financial constraints as a result of decreased funding combined with increased costs. The explosion in the amount of print and electronic publications makes wise budgeting imperative (Peters 2001: 150). In South Africa, these problems are compounded by the decreasing value of the Rand.

In addition, tertiary academic institutions are required to adapt to a changing environment in which they are facing competition from private 'for profit' organisations and are required to constantly ensure that they provide relevant courses to meet the needs of their students and the community. Through the formation of consortia, academic libraries are able to face these challenges more effectively. Resource sharing enables them to optimise their budgets and provide better services to their users. The trend is towards funding of libraries that co-operate, rather than to individual libraries (Wade 1999: 2).

Academic library consortia often mention the virtues and benefits of co-operation and collaboration but Atkinson (2001: 3) pointed out that the ultimate goal of most institutions was survival. He went even further and was one of the first authors in the field to mention competition - competition between libraries, and between libraries and publishers (Atkinson 2001: 4).

2.4.2 Changes in information access and delivery

In the early 1990s, the traditional printed format of published information became so expensive that libraries struggled to balance the allocation of resources to support core curricula and the simultaneous reallocation of limited financial resources to electronic formats (Dorner 2001: 118; Hiremath 2001: 81; Kohl 2001: 3; Potter 1997: 416).

Changes in the publishing industry such as the rapid expansion of the Internet, changes in pricing structures and direct marketing of information to end-users have had a significant impact on libraries. In addition, copyright laws in the electronic environment will drive future pricing and service practices. Libraries are therefore inclined to form consortia as a way to use their collective power to negotiate new agreements with publishers and dealers, and to create more advantageous alternatives to the library community (Bjoernshauge 1999: 118; Salonharju 1999: 4; Wade 1999: 2).

2.4.3 Growth of information technology

Because information technology is so dynamic and expensive to maintain, libraries need to find avenues to employ it as effectively as possible. The Z39.50 protocol initiated the move towards web-based and other decentralised computing systems that will change the types and methods for the provision of services and resources. In some instances this has resulted in the inclusion of the co-operative provision of database services from servers owned by the consortium (Dorner 2001: 118; Kohl 2001: 3; Peters 2001: 149; Wade 1999: 2). Z39.50 is discussed in Chapter Four.

2.4.4 Quality improvement

During the 1990s, the quality of customer service and the reduction of operational costs became increasingly important, and libraries began to form consortia to

- share information
- foster best practices
- reduce the unit cost of core services (Alexander 1999: 5).

2.5 FORMS OF CONSORTIA

As mentioned earlier, the United States are the leaders in academic library consortia. According to the *American Library Directory* (2001: 2339-2366), more than 12 700 libraries in the United States and Canada belong to over 500 consortia and networks. Consortia differ in format and size and no single best model or form for a library consortium has been identified (Helmer 1999: 119). There are different ways to categorise consortia.

Hurtt (2000: 1) used two criteria:

- **Geographical**: all the libraries of a certain state, county or city. Geographic proximity is often considered when forming consortia (Bostick & Dugan 2001: 128).
- **Type of institution**: such as groups of university libraries, research libraries, law libraries or medical libraries.

Libraries in Germany can be used as an example of Hurtt's criteria. Germany has a highly decentralised, federal system of higher education that place decision-making powers at the

state level. Therefore, all the consortia in Germany are formed by region or type of institution, or a combination of both.

Rush-Feja (2000: 2) identified four German consortia models:

- **Regional consortia for libraries in higher educational institutions**.
- **Regional multi-type consortia**.
- **Institutional library consortia** - different institutions, sections or branches of an institution.
- **Supra-regional, multi-institutional research library consortia** - similar types (regional and topical) of collection.

In a study conducted by the System Development Corporation (SDC) Kopp (1998: 8-9), identified four general types of consortia:

- Large consortia concerned primarily with computerised large-scale technical processing.
- Small consortia concerned with user services and operational issues.
- Limited-purpose consortia co-operating in limited special subject areas.
- Limited-purpose consortia concerned primarily with interlending or reference network operations.

Allen and Hirshon (1998: 37) identified four consortia models, ranging on a broad continuum from highly decentralised to highly centralised. Each model has different values, objectives and political realities. As members become more comfortable with one another, it is possible for consortia to evolve from one model to another. Allen and Hirshon listed such consortia (1998: 38):

- **Loosely knit federations** - local or regional consortia formed at grass roots level, governed by member libraries and having neither central staff nor central funding. These consortia are very flexible and have low overheads, but generate a low level of income. While little risk or investment of time is involved, only the simplest of achievements are possible.
- **Multi-type/multi-state consortia** - usually have centralised staff, but co-operation is voluntary, resulting in a low level of co-operation because of little common interest.

- **Tightly knit consortia** - some of the flexibility of the loosely knit federation is present, but these consortia are not encumbered by the fragmentation of membership of the multi-type, multi-state type consortia. A tightly knit consortium might have a sponsoring agency and may have either a focused membership profile (for example research libraries) or a heterogeneous profile (for example regional membership). Typically, some dedicated staff co-ordinate programme development, but do not really control the programme. Such consortia may rely solely upon institutional funding, or may supplement their resources externally.
- **Centrally funded state-wide consortia** - have a sponsoring agency and usually a separate source of funds. The central agency usually secures contracts and pays many or all the consortium costs, such as database subscriptions. Members jointly agree on purchasing, based upon shared interests.

Caraher (in Schroeder 1997: 526) grouped consortia into three major types using centralisation as criterion:

- **Centralised and highly organised** - usually networked and centrally funded. OhioLINK is a well-known example.
- **Decentralised** - usually having a clear mission and a single negotiating body. Funding sources may differ significantly.
- **Loose consortia** - such institutions may have little in common, apart from the desire to co-operate in one way or another.

Kennington (1985: 7) examined co-operative activities in Britain and indicated four main categories:

- **Libraries of the same type**, such as academic, public, special.
- **Libraries interested in the same subject field**, such as law libraries, medical libraries.
- **Libraries requiring the same kind of service facility**, such as GEAC library system users.
- **Libraries located near one another**, such as libraries in one city.

Walters (1987: 19-22) identified five forms of consortia of which the first and the fifth forms the basis of this study:

- **Unit cost consortia** were established by the need to reduce the unit costs of internal library processing routines such as cataloguing, serials control or interlending. The size of these consortia makes it easier to raise substantial capital resources, allowing their users to engage in research and development activities on a far larger scale.
- **Multi-state regional auxiliary enterprise consortia** are distinguished by a wide variety of auxiliary library service enterprises requiring low capital investment or fee-based assessment. These consortia conduct significant training, support automated library operations, and have extensive influence regarding issues of interpretation and mediation on networking for their members.
- **Authority-sanctioned consortia** share common characteristics because governmental authority sources established and sustain such consortia. The sanctioning authority often exercises a measure of jurisdiction and frequently prescribes the planning activities of such consortia. They are economy-based and need to adhere to the mandate that the most effective use of the authority's limited resources be achieved for the greatest number of users under their jurisdiction.
- **Local or proximity consortia** resulted from and are sustained by locality or proximity. Such consortia vary considerably in size and tend to have programmes that make the greatest possible use of the favourable conditions of close proximity. The fee structure is generally lower than that of most of the other consortia, but these consortia are operationally dependent on a sizeable commitment of voluntary staff support from their members.
- **Discipline and type-of-library consortia** are established and sustained by mutual interest in specific disciplines such as theology, law or psychology, or by institutions such as universities, schools or corporations and often derive their strength and effectiveness from the importance of the discipline or institutional policy in national, regional or local context.

It is possible for a consortium to be of a local as well as a discipline and type-of-library nature. An example would be a consortium of all the academic libraries within a region, as is the case in South Africa.

This study concentrates on academic libraries as an example of type-of-library consortium and unit cost consortia. It is easier for one type of library consortia to work together in order to reduce unit costs of library routines, because the library users usually have the same needs, for example: academic library users need more references in authority records than

public library users. An academic library consortium should comply with the following set of criteria, supplied by Patrick (1972b: 6-7):

- The participating members should be autonomous and report to their separate governing bodies.
- Academic libraries should form more than half of the consortium.
- Two or more libraries should be involved in activities other than traditional interlending.
- The consortium should have developed beyond the exploratory phase, for example the group should have declared itself a co-operative entity and should at least be planning joint activities.
- The consortium should be organised to pursue activities that will benefit the academic participants.

2.6 CHARACTERISTICS OF SUCCESSFUL CONSORTIA

Oder (2000: 49) indicated that there were no accepted standards for the success of consortia. However, it could prove useful to examine consortia that are acknowledged as being successful. Heath (1989: 40-45) discussed the following six characteristics:

2.6.1 Automated library systems

De Gennaro (1981: 1049) observed that prior to the current avalanche of co-operative activity, lack of on-line computer capabilities rendered previous consortia rather ineffective. The vision of a shared database in which “collective strengths and resources can be managed and mobilized to serve the needs of researchers” (De Gennaro 1981: 1049) was the initiating force of many consortia.

Automated databases with cataloguing facilities and a union catalogue lie at the heart of many co-operative activities (Bostick & Dugan 2001: 129; Allen & Hirshon 1998: 43; Cochenour & Rutstein 1993: 36; Duckett 1987: 56). Ensuring that members have access to one another’s holdings, interlending and collection development allow a vibrant consortium environment.

2.6.2 Funding

"There is no doubt that periodic, well-timed infusions of extraordinary funds are important for programs ..." (Hewitt 1986: 147). It has become necessary to attract funds from external sources for consortium activities (Dannelly 1999: 66; Allen & Hirshon 1998: 43; Duckett 1987: 56). Annual membership fees need to be supplemented by grants from foundations such as the Andrew Mellon, Reynolds, Carnegie and Rockefeller Foundations. Foundations are more likely to provide financial assistance to libraries that co-operate than to individual libraries.

2.6.3 Governance

Voluntary participation where prerogatives were rarely surrendered characterised the early history of consortia. Gradually, however, successful consortia have demonstrated that some subordination of local autonomy to the general good was required to enable long-term commitment to the benefit of all the consortium members (Weber 1976: 215). A governance structure had to be in place to allow members to work together harmoniously, and the roles of the leaders, committees and governing boards needed to be stipulated. A broadly representative governance structure, flexible enough to enable quick action was required (Klingler 1999: 97). Central consortium staff was needed to co-ordinate efforts and to communicate developments to members (Bostick & Dugan 2001: 129; Cochenour & Rutstein 1993: 36).

2.6.4 Policy

Successful consortia generally indicate that members have a clear understanding of the policies that govern consortium operations (Dannelly 1999: 66; Allen & Hirshon 1998: 43; Cochenour & Rutstein 1993: 36; Martin 1988: 131). To be effective, the co-operation agreement should be simple, unambiguous and flexible, and sufficiently detailed to serve as a guide for the implementation and ongoing administration of the consortium. Specific areas of agreement should include:

- Clear reference to member obligations.
- The extent of financial commitments.
- Each participant's role in the governance and activities of the consortium.

2.6.5 Common purpose

The elusive concept of community and common purpose is also characteristic of successful consortia (Day 1979: 20). Hewitt (1986: 148) suggests that co-operative efforts are more easily established when there is some parity or equality among participants.

Successful consortia reflect a closed-rank sense of purpose, even while the members may reserve the right to disagree among themselves. One of the key elements to this sense of purpose seems to be that fraternity is not essential, but that group assurance of the principle of equality and mutual benefit is important, as is a high degree of trust that develops from the transparency of the process and the effectiveness of the governance structure.

It would appear that the leadership of key institutions and individuals are pivotal. The force of individual personalities and the authority of institutions are critical to initiate the process of the co-operative effort and to maintain momentum during the formative years of a consortium (Twiest & Badke 1992: 65).

2.6.6 Assessment

While other variables may be singled out, it is apparent that successful consortia either have assessment criteria, or are planning to assess the outcomes of their ventures (Sloan 1999: 1-2; Cochenour & Rutstein 1993: 37; Day 1979: 21). Conversely, problems within a consortium may indicate that no initial survey had been conducted and that members lacked the necessary knowledge about consortium management, policy issues, funding, etc.

To be successful, being part of a consortium should be beneficial to the member.

The next section focuses on the functions of academic library consortia.

2.7 FUNCTIONS OF ACADEMIC LIBRARY CONSORTIA

Any level of consortia activity can be justified only if it improves services to the library user (Landesman & Van Reenen 2000: 2). Consortia should offer an array of numerous services, a variety of technological methods, diversity of human expertise, and the capability to address a multitude of problems.

Consortia functions can be divided into three primary groups (Williams & Flynn 1979: 50-52) - groups that

- serve library users directly
- serve the member libraries directly and the library users indirectly
- support the consortium structure.

The first two functions are goal-oriented and aim to fulfil the primary goal of the consortium (to provide the best possible service to users of consortium libraries) and its necessary condition (the survival of all the member libraries). These goals correspond with the general objectives of resource sharing and the reduction and/or control of rising costs.

The third function of a consortium is to support consortium activities and comprises activities that contribute to the accomplishment of the two other primary goals. For example, functions that serve the library user directly would include

- interlending
- union catalogues
- reciprocal borrowing privileges
- continuing education, whether for professionals within the consortium, or for users in general.

Functions that serve the library interests directly and the user indirectly, would include

- co-operative acquisition programmes
- technical processing regarding acquisitions
- cataloguing, authority control, resource and location identification
- circulation control systems.

Activities that support consortium structure may involve

- the creation and operation of systems that implement the functions mentioned above (system support)
- evaluation activities, including statistics, performance analyses and user evaluation studies
- staff and user training
- determination of costs and fees

- communication, such as meetings, agendas and minutes, etc.

The impetus for establishing a consortium is to provide an improved library service more economically. Since the primary goal of a library is to provide users with access to information at the lowest possible cost, and since library activities such as cataloguing, authority control, etc. are performed with this in mind, it is difficult to imagine that a unified cataloguing and authority control function within a consortium cannot perform these activities more cost-effectively than separate libraries. The importance of union catalogues to improve library services for consortium members is discussed in Chapter Three.

2.8 INTERNATIONAL DEVELOPMENTS IN THE FIELD OF ACADEMIC LIBRARY CONSORTIA

In their study on the current state of academic library consortia, Allen and Hirshon (1998: 36) stated that the most important development for academic libraries has been the shift from organisational self-sufficiency to co-operation with others in order to survive. One of the reasons for the shift from ownership to access are the budgetary constraints experienced by libraries over a period of many years, and the assumption that the situation will not change in the foreseeable future (Darch, Rapp & Underwood 1999: 23; Eaton 1995: 31).

The other factor influencing co-operation and the formation of academic library consortia is the increasing cost of information at a rate that many libraries find difficult to match with decreasing budgets. Simultaneously, the increase in the number of both print and electronic sources will continue (Morgan 1998: 41; Taylor-Roe 1998: 3; Hirshon 1995: 383).

The requirement to acquire an increasing volume of information with ever-shrinking budgets will compel libraries to continue with co-operative programmes during the foreseeable future. Academic library consortia are taking steps to ensure that all stakeholders have access to required information.

2.8.1 International Coalition of Library Consortia

A significant development in the growth of academic library consortia has been information

sharing by consortium leaders and library directors. They found it helpful to discuss concerns and ideas about the management of their organisations and the consortium, and the co-ordination of services to their members.

From humble beginnings as a small informal discussion group that met informally during professional library meetings and conferences, a new organisation, the brainchild of Tom Sanville, executive director of OhioLINK, the Consortium of Consortia, was formed in 1997 and renamed the International Coalition of Library Consortia (ICOLC) in 1998 (Alexander 1999: 9; Allen & Hirshon 1998: 40).

The purpose of the ICOLC is " ... to be a forum to work with information providers to find common ground" (*Harrod's Librarians Glossary* ... 2000: 356). The ICOLC comprises 160 consortia in the United States, Canada, Europe, Israel, Australia and South Africa (*ICOLC Announces ... 2002: 36*). A list of ICOLC members is available online at http://www.library.yale.edu/consortia.

Primarily, ICOLC serves higher education institutions by facilitating discussion on issues of common interest. The semi-annual meetings of ICOLC keep consortium directors and their governing boards informed about new electronic information resources, pricing practices of electronic information providers and vendors, and other important issues (Bostick & Dugan 2001: 129). These meetings also provide a forum for consortium representatives to meet with the information provider community to discuss their products, and to engage in dialogue with fellow ICOLC members on issues of mutual concern.

Helmer (in Oder 2000: 50) calls the progress of ICOLC "fascinating", because it has no formal structure, no membership, no funds and no president. It has the "willing labor of a few people" (Oder 2000: 50).

ICOLC maintains online discussion forums and web pages for the benefit of its members and is available at http://www.library.yale.edu/consortia (Hirshon, *et al*. 1998: 50).

In March 1998, a number of ICOLC member consortia adopted the *Statement of Current Perspective and Preferred Practices for the Selection and Purchase of Electronic Information.* The document identifies concerns about the current electronic environment, the desired environment for the future, and the preferred practices for library consortia and their member libraries to achieve the preferred outcomes. Its intent is to define the current

conditions and preferred practices for pricing and delivering scholarly information within the growing electronic environment. The document also aims to provide a starting point for dialogue between information providers and library consortia (International Coalition of Library Consortia 1998: 1-11).

Similar statements on other aspects of the electronic information environment have been adapted. Topics include guidelines for statistical measures relating to Internet resources and technical issues in contract negotiations. All documentation of the ICOLC is available online at http://www.library.yale.edu/consortia.

2.8.2 *Library Consortia Documents Online*

A large number of documents about consortia are available on the Internet. *Library Consortia Documents Online* is a collection of about 100 primary source documents on the Internet dealing with the government and administration of library consortia and co-operatives. This site is useful for practitioners who need to study consortia governance documents whilst in the process of reviewing or creating the governance structure of their own consortium. The site will also be helpful to library and information science educators and students who are doing research on library consortia and co-operatives.

The site focuses on four types of consortia documents:

- **Bylaws** are a comprehensive source of information on the constitution of the governance structure of consortia. Bylaws often indicate the legal status of the consortium, describe committee structures and outline membership criteria.
- **Memoranda of understanding** generally outline the business relationships between consortium member libraries, including the rights and responsibilities of membership.
- **Resource sharing agreements** describe the rules for sharing physical library resources - one of the basic functions of many library consortia.
- **Strategic plans** reflect the way a consortium views itself, or the way a consortium would like to view itself.

Library Consortia Documents Online can be accessed at: http://www.lis.uiuc.edu/~b-sloan/consort.html

2.8.3 *Library Consortium Management*

In 1999, MCB University Press in the United Kingdom published a new electronic journal *Library Consortium Management: an International Journal*.

In the opening editorial, Hirshon (1999: 1) mentioned that although academic libraries initiated the consortium movement, public, school and even corporate libraries were exploring consortium participation to provide better services and cost reductions.

The rapid establishment of library consortia is reflected in this unique journal. *Library Consortium Management* addresses special concerns of consortia and serves as a forum for the discussion and dissemination of knowledge about the theory and practice on the management of library consortia around the world. A wide range of topics of importance to library consortia is covered, such as digital library development, electronic information licensing, the management of print and other traditional resources, new and emerging consortium programmes and services, and the governance and management of library consortia. Special columns cover web site reviews, book reviews and other topics of interest.

The key feature of *Library Consortium Management* was that it was published electronically. Although a print version was available, it was the belief of the editorial board and the publisher that library consortia were concerned with advancing the availability of electronic information and that this journal should reflect the values of its readership (Hirshon 1999: 2). To aid this goal, a companion electronic discussion forum was established to enable the discussion of key strategic and tactical management decisions related to consortium management.[1]

2.9 SUMMARY

Major upheavals at all levels will make it difficult to find a library that has not had to re-examine its priorities (Pye 1999: 1). Although Pye (1999: 1-7) was talking about the situation in the United Kingdom, it could well have been relevant to any library in the world.

Libraries were forced to re-evaluate their situations and find means to supply the best possible service to their customers. Becoming part of a consortium provided one solution. Library consortia have grown in number and in size and have become powerful entities, and all indications are that they would continue expanding.

The discussion of the history and development of academic library consortia in the United States resulted in the definition of library consortia as a group of libraries formed to undertake activities beyond the capabilities of the individual members.

The different consortium models as discussed in this chapter were developed in response to the challenges posed by economic pressures, changes in the access and delivery of information, growth in information technology and quality service to library users.

There is no single best model or form for a library consortium, and several different models were discussed. This study concentrates on unit cost consortia, but especially on academic library consortia, and five criteria for qualification as an academic library consortium was listed. It seems difficult to determine the successful requisites for a consortium or the aspects that may contribute to its collapse. Most successful consortia share certain characteristics and six of these were discussed. These will be used when searching for a solution to the problem of cost effective authority control within an academic library consortium using a union catalogue.

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[1] The discussion forum was housed on the MCB server as part of the Emerald database. Due to the de-listing of the *Library Consortium Management Journal* and the inability to manage the discussion software, Emerald shut down the list on 15 October 2001 (Jones 2001).

The existence of a consortium can only be justified if it improves service to the library user. Consortium functions that serve library users directly, functions that serve member libraries directly and users indirectly, and functions that support the consortium structure were discussed. The purpose of authority control is to structure access points in the catalogue in such a way that the user may find what he is searching for quickly and easily. Without authority control, information would be lost and information storage and retrieval within the union catalogue would not be effective.

Library consortia have come of age. They are here to stay. Indications of that are the formation of the International Coalition of Library Consortia and a journal dedicated to library consortia.

As mentioned several times before, libraries are facing economic pressures - a trend that will continue in the future. Through the formation of consortia, libraries are able to face challenges more effectively. It is a well-known fact that the creation and maintenance of an authority file is one of the most expensive library activities. Through union catalogues, libraries are sharing authority records in order to save time and money. In using a union catalogue, one library creates an authority record and it can be used by all the libraries in the consortium. One aspect that is neglected is libraries without the resources and expertise to create authority records. If they need an authority record and there is not a record available in the union catalogue, they are forced to go without a record. That has a negative impact on the recall and precision for their users. A strategy for shared authority work via a consortium, making it possible to save time and money, is discussed in the next chapters.

The character, principles and objectives of authority control and the functions, possibilities and implications of union and virtual union catalogues are discussed in Chapters Three and Four.

CHAPTER 3

THE CHARACTER, PRINCIPLES AND OBJECTIVES OF AUTHORITY CONTROL

3.1 INTRODUCTION

Authority control may be considered as the ultimate technical service process in libraries.

Experienced staff assists users in their quest for information through the creation of authority records, according to complex rules.

The purpose of Chapter Three is to discuss the technical process of authority control, a function that is performed on access points in the library catalogue to facilitate searches. However, before continuing it may be useful to consider the Internet, one of the latest information resources, and its approach to access points.

The advent of the Internet as an information resource has sparked a debate on the issue of anonymity. A major consequence of the Internet is increased anonymity and the resulting legal consequences (Froomkin 1999: 113). Encryption on the Internet makes it possible to use pseudonyms and forwarding services to remove all identifying marks from a document.

The meaning of anonymity is to not reveal one's name (Nissenbaum 1999: 141) when doing, writing or saying something. A document is considered to be anonymous when it cannot be attributed to a specific person; a donation is anonymous when the name of the donor is withheld, etc. According to Marx (1999: 99-100), anonymity is one polar value on a broad continuum of identifiable ability versus non-identifiable ability. A person who remains fully anonymous cannot be identified by:

- Legal name, assuming that there is one person (or more persons, if the name is shared) born to particular parents at a given time and place.
- Address, such as location, telephone, e-mail, postal box address, etc.
- Alphabetic or numerical symbols, which include identity numbers that may be linked to a person or address.

- Symbols, names or pseudonyms that in the normal course of events cannot be linked to a person, for example names used by con artists, spies and undercover operatives.
- Distinctive appearance or behaviour patterns of a person who is unnamed, but known. The patterned conditions of urban life enable the identification of people not known (for example people using the same bus, lift, seat in church).
- Social categorisation - many sources of identity are social and do not differentiate the individual from other such sources (for example gender, ethnicity, religion, age, education).

- Certification - the possession of knowledge (secret codes, passwords), artefacts (tickets, uniforms, tattoos) or skills (performing, such as the ability to sing) identifies a person as being of a specific type to be treated in a certain way.

Knowledge of a person's identity is an aspect of informational privacy, involving the expectation that individuals should be able to control information about them that is made public. However, the aim of authority control is to uniquely identify each name as a heading in the catalogue and anonymity has never posed a significant identification problem in traditional library systems. There is little place to hide one's identity in a library catalogue. Authority control librarians will do their utmost to uniquely identify each author, even if a person should choose to remain anonymous. It is the aim of *Anglo American Cataloguing Rules, second revised edition* (AACR2) to ensure that as far as possible all the works of anonymous authors are identified (Brubaker 2002: 24-25).

The purpose of authority control is to structure the access points in the catalogue in such a way that the user may find what he is searching for quickly and easily. Eliminating duplicate headings and creating references between similar headings can achieve the aim to identify each person as a unique individual.

Authority control is an expensive process. It should therefore be the goal of all libraries to create and exchange authority records with other libraries. The vehicle for the successful exchange of records is an authority file in a union catalogue as discussed in Chapter Four and the development of a Central Office for Authority Control as discussed in Chapter Seven.

In this Chapter, all the terms used in authority control are defined and the role of authority control in the library catalogue is discussed. The advantages of authority control are outlined and the different users are mentioned. Should authority records be created on international databases, it would benefit more than just the national libraries, and would enhance the image and status of South African libraries and librarians internationally. However, to be able to participate internationally, South African librarians should be aware of international standards. Developments in authority control are discussed and the Chapter is concluded with the focus on important role players regarding authority control in South Africa.

3.2 DEFINITIONS OF AUTHORITY CONTROL

The purpose of this section is to define the various terms associated with authority control to prevent confusion regarding the terms and their usage.

3.2.1 Authority, authority work and authority control

What is authority? According to the political scientist Kathleen Jones the traditional view of authority is seen as a command-obedience model. Authority and the authoritative act "construct order; they enforce obedience, conformity and acceptance..." (Jones 1992: 191). This model can be applied to the library catalogue term "authority control". Access points in bibliographic records need to comply with headings in authority records (Olson 1996: 1). Authority control enforces the use of limited, standardised systems for the representation of information and imposes uniformity whilst rejecting divergence and diversity.

Authority work entails the research work, intellectual effort and all the clerical tasks involved in creating and updating authority records. It consists of more than the formation of a uniform access point. It also comprises a record-keeping function (Maxwell 2002: 3). To ensure that the works of a personal author or a corporate body are grouped together, the cataloguer needs to determine whether the name has been used before in the catalogue, verify that the name has been established correctly, and make adjustments if required. The same form has to be used to ensure consistency. If the name to be used for a heading cannot be traced in the catalogue, the cataloguer is required to establish the form to be used as a heading, following agreed-upon conventions, such as *AACR2* and *Library of Congress Rule Interpretations* (LCRI) (Tillett 1989b: 3; Burger 1985: 1; Malinconico 1982: 1).

Because there is room for cataloguer judgement in the choice of form of a name, it is necessary to check the catalogue and authority file for each search point. Different cataloguers may provide different headings for the same name (Maxwell 2002: 3). For example, AACR2 22.17 instructs the cataloguer to add dates if one name is identical to another. The rule provides the option of adding dates if these are known, even if there is no need to distinguish between headings. Thus, Cataloguer A receives *The Heart and Soul of Gé Korsten,* a double CD by the singer Gé Korsten and creates the heading as Korsten, Gé. Cataloguer B receives the same CD, but has information that the singer was born in

1927, and creates the heading as Korsten, Gé, 1927-. Cataloguer C also receives the CD, but knows that he was born in 1927 and died in 1999 and creates the heading Korsten, Gé, 1927-1999. Under current cataloguing rules all three headings are correct. If no record of earlier decisions had been kept, the only way to choose would be to view at the library's bibliographic records to determine what heading might have been used in the past. The most effective method would be to keep separate records of decisions made, to prevent re-doing the work each time a heading is required. Such records make up the authority file.

Wynar (1992: 472), Coetzee (1990: 41), Burger (1985: 3) and Avram (1984: 331) identified the following processes in authority work:

- Creating authority records for use in creating authoritative bibliographic records.
- Gathering records into an authority file.
- Linking the authority file to a bibliographic file to form an authority system.
- Maintaining the authority file.
- Regularly evaluating the authority file.

Tillett (1989a: 10) regarded the updating of authority records as part of the authority work process and identified the following steps:

- Deciding which headings needed to be corrected and identifying the bibliographic records affected by such corrections.
- Changing the authority record.
- Changing the corresponding bibliographic records and references.

Authority control is the overall, broad term for the technical processes of authority work and aims to achieve control over the variant forms of access points. Taylor (1984: 2) defined it as "the process of maintaining consistency in headings in a bibliographic file through reference to an authority file," whilst Clack (1990: 1) and McDonald (1985: 220) viewed uniqueness, standardisation and links between variant forms of headings as the foundation for authority control. Authority control enforces the use of limited, standardised systems for the representation of information. It imposes uniformity and rejects divergence and diversity (Olson 1996: 1).

Three steps in the authority control of each access point can be identified (Clack 1990: 1):

- Research.
- Creating a standardised form.
- Creating links in the form of references from unused to used forms of the name.

Svenonius (1987: 1) did not regard research as a separate step, and identified only two steps in authority control:

- Identifying one form of a heading as authoritative.
- Linking variant forms of the heading with references to the authoritative heading.

The following steps to create an authority record in a computerised library catalogue is used in this study:

- **Research** which includes:

    - Inspecting an author's works available in the library to determine if different forms of the name are used, such as pseudonyms or name changes.
    - Identifying all the different forms of the name.
    - Searching databases to determine the name commonly used and to identify other authors with the same name.
    - Consulting reference sources to resolve conflict, if required.
    - Taking a preliminary decision on the authoritative form.

- **Creating an authority record** includes:

    - Confirming the establishment of the authoritative form of the name by using it as the 1XX in the authority record.
    - Making 4XX references from the unused forms of the name to the used form.
    - Making 5XX references to link related headings.
    - Completing the authority record, as required by international policies.
    - Exercising quality control on the new record.
    - Saving the record in the database.
    - If already available in a union catalogue or bibliographic utility, downloading the

existing authority record onto the local system.

- **Housekeeping** is a term used to describe clerical and clean-up tasks resulting from the creation of the record and includes:

  - Inserting the new heading in bibliographic records.
  - Removing duplicate forms from the author, title or subject index.
  - Keeping statistics.

Automated authority control is the use of a computer to manage sections of the process of authority control (Taylor 1984: 2). Tillett (1989a: 11) preferred to regard it as the computer's role in authority work and viewed it as the more general control over access points, possible within a computerised bibliographic file.

Automated authority control fully utilises the computer's capabilities to enhance authority control through providing better ways to control access points. Some of the sophisticated library systems, for example, allow the identification of duplicate headings when generating authority records lists.

Authority work operations in an automated environment could include the following (Tillett 1989a: 11-12; Jessee 1980: 1-4):

- Computer-assisted establishment of author headings, including automatic validation of new headings against an existing authority file, and automatic verification of new headings and their MARC coding.
- Matching algorithms to normalise capitalisation, spacing, punctuation and diacritical marks, spelling checks, etc. Such operations improve computer control of access points, as well as enabling it to translate user search terms into controlled headings.
- Automatic provision during the search or matching process for truncations of root words etc. in the authoritative heading format.
- Transparent references, or alternative output displays, alerting users to alternative forms of access points.
- Maintenance capabilities, such as global change functions - the ability to change all occurrences of an identified heading when required.

For the purpose of this study, it is assumed that library consortia are using computerised authority files.

3.2.2 Authority forms, authority records and authority files

The **authority form** is the chosen form of an access point and should be used as a search point in a bibliographic record (Auld 1982: 319). It is sometimes called an authority heading, a heading, or an access point.

An **authority record** can be defined as a unit of authoritative information representing an individual heading in an authority file. It includes the authoritative form of the heading, references to and from the heading, cataloguing notes, historical information, and references to the source of the heading (Hine 1991: 2; Buchinski 1978: 6).

The **authority file** consists of

- authority records, identifying the established or authoritative form of access points
- cross-references from variant forms to the preferred form of the access point
- links between earlier and later forms of headings
- links relating to broader and narrower subjects
- information concerning the scope of certain items.

The authority file provides structure within a catalogue and ensures that headings within the catalogue are consistent and unique (Aschmann 2003: 34; Wynar 1992: 19; Hine 1991: 2; Avram 1984: 331; Auld 1982: 319; Buchinski 1978: 6).

Data is the general term for information stored in a database (*Harrod's Librarians' Glossary.* 2000: 209 -210; *International Encyclopedia of Information* ... 1997: 97).

Authority data can therefore be defined as the information in a computerised authority record. Authority data comprises the intellectual content of the authority record (Park 1992: 76).

3.3 AUTHORITY CONTROL AND THE FUNCTION OF THE CATALOGUE

In 1876, Charles Cutter made his classic statement on the objectives of a catalogue. He believed that catalogue users were entitled to search and retrieve all the material applicable to their search as effectively as possible, and that the catalogue should thus be constructed to minimise user time and effort (Younger 1995: 134). According to Cutter (cited in Ayres 1995: 6; Brunt 1992: 23; Tillett 1991: 151; Knop 1982: 34;) the catalogue has the following functions:

1. To enable a person to find material of which one or more of the following is known:

   (a) the author
   (b) the title
   (c) the subject.

2. To indicate what the library has

   (d) by a given author
   (e) on a given subject
   (f) in a given kind of literature.

3. To assist in the choice of material

   (g) regarding the edition (bibliographically)
   (h) regarding its character (literary or topical).

This means

- author entries with references to cover (a) and (d)
- title entries or title references to cover (b)
- subject entries with cross references and subject tables to cover (c) and (e)
- form and language entries to cover (f)
- edition, imprint and notes if applicable to cover (g)
- notes to cover (h)

The authors of the *Paris Principles of 1961* (Beacom 2001: 149-150; Burger 1985: 4) redefined Cutter's objectives of the functions of the catalogue:

The catalogue should be an effective instrument for determining the following:

1. Whether the library contains a particular book

    (a) described by author and title
    (b) described by title, if the author is not named in the book
    (c) a suitable substitute for the title, if the author and title are inappropriate or insufficient for identification.

2. The works of a particular author and editions of a particular work that are available in the library.

Cutter's objectives and the *Paris Principles of 1961* were later restated by Lubetzky (cited in Tillett 1991: 151) and categorised into two catalogue functions:

- the finding function
- the collocation (assembling) function.

3.3.1 Finding function

The finding function directs the user to the material and location in the collection. A bibliographic record with sufficient bibliographic information to uniquely identify the item, together with information about the specific location of each volume and copy is required to locate and retrieve the desired item from the library collection. Finding the bibliographic record of a specific item necessitates isolating it from all other bibliographic records in the catalogue - hence the need for access points. The catalogue provides access to the names of authors, titles and subjects and has to distinguish these from other similar access points. The form of such access points therefore needs to be unique.

This function satisfies the need for retrieving a simple, discrete item and partly satisfies library user requirements. For example, if a user knows the name of an author, a search of the catalogue under that name will allow the user to find the work. The finding function

emphasises the individual bibliographic record. Bibliographic records are surrogates for the items they describe. Each description represents a unique, physical item in the collection. The finding function can be used effectively only if authority control on access points in bibliographic records is carried out (Maxwell 2002: 7; Vellucci 2000: 35; Tsui & Hinders 1998: 44).

3.3.2 Collocation function

The collocation or assembling function of the catalogue enables the user to find

- all the works of a specific author
- works on a given subject
- various editions of a work.

Authority control is more closely related to the collocation than to the finding function.

The collocation function satisfies the majority of the needs of library users most of the time. Collocation assists the user to find items in instances where the information regarding the author, edition, or subject is incomplete. Consistency is a result of collocation and makes the catalogue easier to use (Maxwell 2002: 7-8; Vellucci 2000: 34; Tsui & Hinders 1998: 44).

To summarise, without authority control, the finding and collocation functions of the library catalogue cannot succeed. The advantages of authority control thus need to be investigated.

3.4 ADVANTAGES OF AUTHORITY CONTROL

The use of authority files to ensure consistency when using access points, is gaining interest in libraries around the world. Most library materials have more than one access point and most of those access points have more than one form. In small collections where the librarian knows which documents should be retrieved it may be possible to control recall[1] and precision[2] without authority control. In large collections, the user has little idea of likely search results and may experience low precision. Authority control is very expensive because only qualified cataloguers are employed and the research is

time-consuming (Maxwell 2002: 6). Authority control has always been of greater importance in medium and large collections - to ensure that the correct record is identified. (Holm 1999: 11; Tsui & Hinders 1998: 44; De Villiers 1995: 36).

Authority control has several advantages:

3.4.1 Authority files lead to better recall

Using authority files leads to greater precision and accuracy in the database and enables retrieval of all items on a specific person or a given subject. Improved recall provides a better user service. Without authority control, the user needs to consider all the possible forms of the heading (Gatenby 2002: 326; Jeng 2002: 93-94; Maxwell 2002: 7; Wells 2000: 2; Grady 1996: 3; Hunter 1985: 53; Elias & Fair 1983: 290).

3.4.2 Authority files link access points

The use of an authority file is the only way to link or assemble related search points (Aschmann 2003: 34-35; Clack 1990: 4). References lead the user from unused to used access points and also provide a logical structure that facilitates the use of the catalogue (Maxwell 2002: 6; Vellucci 2000: 34; Auld 1982: 327).

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[1] Recall is "a measurement of retrieval effectiveness, shown by the ratio of the number of relevant documents retrieved over the total number of documents in the catalogue" (Keenan 1996: 44; Watters 1992: 176). It is called the recall ratio in *Harrod's Librarians' Glossary ...* (2000: 614).

[2] Precision is "a measurement of retrieval effectiveness, shown by the ratio of the number of relevant documents retrieved over the total documents retrieved" (Keenan 1996:44; Watters 1992: 176). It is called the relevance ratio or the precision ratio in *Harrod's Librarians' Glossary...* (2000: 623).

3.4.3 Authority files promote bibliographic control

Authority control is required for effective bibliographic control and authority files ensure better recall (Svenonius 1987: 7; *Authority Control* ... 1982: 42).

3.4.4 Authority files contribute to good quality catalogues

According to Henderson (1983: 335) the authority file is an important factor in the quality of the database. Authority files force cataloguers to follow rules and procedures, resulting in fewer errors, the elimination of duplicate records, and unnecessary access points and

references.

3.4.5 Other advantages of authority control

Authority control is the most time-consuming and labour-intensive aspect of cataloguing and there has been no shortage of articles that question its economics and wisdom. Although authority control is expensive, unsuccessful searches could prove to be even more costly. Additional computers are required to accommodate online users who spend longer time searching the catalogue (Oddy 1986: 3; Thomas 1984: 393; *Authority Control* ... 1982: 39).

With the advent of automated systems for the control of bibliographic information, many librarians thought that the authority control requirement would be discarded (Johnston 1990: 43) and that sophisticated retrieval capabilities would eliminate the need for the authority work required to maintain manual catalogues (Wells 2000: 2).

Computer capabilities such as Boolean logic, keyword, proximity and truncation searching enhance searching facilities in an online catalogue (Aschmann 2003: 34). However, these cannot replace the valuable linking and guiding functions provided by authority control (Jamieson, Dolan & Declerck 1986: 283). True authority control is the only function that allows the

- identification of pseudonyms
- tracing of name changes
- grouping of related subjects.

3.5 USERS OF AUTHORITY FILES

The following section discusses the various users of authority files.

3.5.1 Cataloguers

Cataloguers are the creators and primary users of authority files and authority control evolved in libraries to support these specialised staff members (Bearman & Szary 1987: 69). Cataloguers determine if a heading has been authorised as an access point or if it still needs to be established (Maxwell 2002: 5; Schmierer 1980: 600).

The cataloguer is also able to use the authority file as a model for constructing similar headings. The authority file may contain a form of a name or title that is unusual but which has already been prescribed for that particular name or title. Using the authority file as a source of precedents also allows the cataloguer to determine if an existing authority record needs to be changed according to the latest information available (Burger 1985: 31).

3.5.2 Acquisitions personnel

It is a misconception that only cataloguers utilise the authority file. Before ordering material, library acquisitions personnel use the authority file to

- determine if the library already has the item
- verify a name in a publisher's catalogue
- verify a request from a user.

Verification allows facile transfer of accurate bibliographic information to the vendors or book suppliers, thus avoiding time-consuming correspondence and excessively long waiting periods (Maxwell 2002: 7; Anderson 1992: 65).

3.5.3 Reference librarians

Reference librarians use the authority file in a way similar to that of acquisitions personnel. The catalogue is one of various inquiry tools and effective use of the catalogue leads to the use of the authority file. An inquiry may contain a form of a name that is obsolete, a pseudonym or an uncommon variant. To determine whether the library can meet the user's request, the reference librarian may need to consult the authority file to determine if the name is a valid form of a name in the catalogue and, if not, determine the form used in the catalogue (Baker & Kluegel 1982: 381).

3.5.4 Library clients

Library users who access the catalogue use the authority file as a reference or finding tool in much the same way as reference librarians. In computerised catalogues containing an authority file, decisions on the form of the heading to be used when searching are taken covertly on behalf of the users (Page 1991: 8; Burger 1985: 32). Systems without an

authority file require the user to consider all possible variations of a name, title or subject of the item that is searched. Libraries should employ all the means at their disposal to provide a good service because that is their *raison d'êtr*e (Maxwell 2002: 5; Potter 1986: 20).

3.5.5 Other users

Traditionally, authority work has been regarded as a function of libraries in the context of printed material. However, it has a wider function that includes other materials such as visuals and art objects, as evidenced by developments in **museums and art galleries** (Stam 1987: 55).

Involvement in national and international databases has heightened the awareness of archivists in data quality (Bearman 1989: 287) and has increased attention in authority control in the **archival community.** The Linking and Exploring Authority Files (LEAF) Project (see Section 3.8.5) is an indication of the interest shown by archives, museums and art galleries.

Library system and software vendors offer a wide range of authority control products and services. Recent trends (Johnston 1989: 243) indicate that the library automation industry is responding to increased pressure from their clients. Some vendors (for example Innovative Interfaces Inc.) even offer clients access to established authority files.

Bibliographic utilities such as OCLC, RLIN and WLN have their own authority files and provide access and services to member libraries (Taylor, Maxwell & Frost 1985: 197).

The form of search points, as prescribed by authority records are used in bibliographic records. Focus on the interaction between these two types of records is required for greater understanding of the way in which they interact.

3.6 INTERACTION BETWEEN AUTHORITY FILES AND BIBLIOGRAPHIC RECORDS

The function of the authority file is to maintain a record of decisions about the form of

access points to be used in bibliographic records. A detailed discussion on this issue by Snyman (1999: 28-32), Bourdon (1994: 74), Coetzee (1990: 42-43) and Burger (1985: 32-34) is summarised below. Different approaches are identified.

3.6.1 Separate authority files for each type of heading

A separate authority file is created for each type of access point, for example names, uniform titles and subjects. The disadvantage is that the user of the authority file has to access various files to determine whether an authority form already exists. Also, a file of this type may allow errors and inconsistencies because different forms of the heading could be used in the various files. For example, a personal name in the name authority file may vary from the form used in the subject authority file.

3.6.2 Joint authority files

All the authority records (personal and corporate names, uniform titles and subjects) are stored in a single file. To create the impression of separate files, MARC tags may be used to classify authority records according to type. A single file allows an authority file in which a heading is used once only, regardless of it being a name or a subject heading. This ensures consistency in the use of headings.

3.6.3 Integration of authority files with bibliographic files

Three types of integration are possible:

- A **fully integrated authority file** is an integral part of the library system. Search points in bibliographic records are automatically checked against the authority file. The links between the bibliographic and authority files is achieved by assigning a unique number to each authority heading used to represent the heading in a bibliographic record. The advantages of this system are that it is impossible to add search points to the database without checking the authority file, and that corrections in the authority record will automatically be reflected in all the bibliographic records

linked to that authority file. The links between the two files, however, has the disadvantage that errors made when establishing the links, may result in anomalies that affect the consistency of the database.

- In **partially integrated authority files** the authority file is available online and linked to the bibliographic file, but it is possible to create search points in bibliographic records without accessing the authority file. The disadvantage is that it may result in two or more forms of a search point in the bibliographic file.
- In **independent or non-integrated authority files** the bibliographic and authority files are completely independent. The disadvantage is that corrections to the authority file need to be made individually to all corresponding headings in the bibliographic records (Page 1991: 9; McDonald 1985: 222). This may result in inconsistency between the authority headings in the authority file and name headings in the bibliographic files. The advantage of non-integrated authority files is that the cataloguer has the opportunity to select the access points for authority records, for example, those that require cross-references, or those that may present problems.

3.6.4 Open and closed authority files

There is a difference between open and closed authority files in bibliographic utilities and union catalogues.

In an **open authority file**, additions are processed automatically during cataloguing, leaving no control over the records added to the authority file. Because the system handles additions programmatically, *Smit, H*. and *Smit, Hettie*, for example, may be regarded as two different headings although they refer to the same person. Verification is conducted afterwards and duplication may thus occur. The verification process is time consuming and expensive.

In a **closed authority file**, all users may search the file, but additions and changes are limited to authorised personnel. The result is a user-friendly, high quality authority file with verified headings and no duplicate records. The disadvantage is that it is labour intensive and expensive because only qualified, experienced staff are authorised to work on such a file.

3.7 INTERNATIONAL STANDARDISATION IN AUTHORITY CONTROL

International co-operation in the exchange of bibliographic records is flourishing. Being used internationally, such records have access points managed by automated authority files. It seems logical to re-use authority records similar to such use of bibliographic records. The subject of international exchange of authority records has frequently been raised at international conferences, but as yet no concrete steps have been taken beyond the formulation of projects to investigate the possibilities (Bourdon 1992: 135). Substantial work has however been conducted under the auspices of the International Federation of Library Associations and Institutions (IFLA) to speed up the process. The following sections highlight achievements and progress.

3.7.1 International standardisation of authority data

3.7.1.1 Principles of Universal Bibliographic Control applied to authority data

According to the principles of Universal Bibliographic Control (UBC) each national bibliographic agency should be responsible for establishing the authoritative form of a name for the personal and corporate authors (Anderson 1974: 57) of that country and for making it available to other countries (*Harrod's Librarians' Glossary* ... 2000: 751-752). The thirteenth Recommendation of the International Congress on National Bibliographies,

organised by UNESCO[1] and IFLA in Paris in 1977, reiterated this idea and recommended that a national bibliographic agency should maintain an authority control system for national names and uniform titles (Delsey 1989: 17).

If adhered to by all countries, the collation of such data would enable international control of authorities. This supposes that within each official national bibliography, the national authors are distinguished from foreign authors whose works are published in that country. The diffusion of authority forms through the national bibliography should ensure that all organisations using existing bibliographic records, also use the existing associated authority headings and records. Technology is not yet sufficiently advanced to allow sharing on an international level as advocated by UBC. Because the funding for an international centre to manage such a programme is not available, the visionary concept

of UBC (Tillett 2001:2) has thus far not been realised. Gorman (2001: 307-308) mentioned that bibliographic and authority records on paper had in fact been exchanged between libraries - being the most ineffective way possible. Since such records often resulted from different cataloguing codes and practices, it made integration into catalogues very difficult. Incorporating international records without changing these (a decision that degrades the catalogue very quickly), or revising such records (and retyping the records in the process) soon indicated that it would have been cheaper and quicker to catalogue such items from scratch.

UBC is now being approached differently. Davinson (cited in Behrens 1991: 43) outlined how general bibliographies, national library catalogues etc. afford a structure that bears a semblance of UBC. Instead of a centralised universal bibliography, an attempt is made to achieve UBC in a decentralised way through a variety of bibliographies. The attainment of UBC can only be possible if each country accomplishes a high degree of national bibliographic control to build the infrastructure for an international network of national bibliographic control resources (Behrens 1991: 43).

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[1] UNESCO is the abbreviation for United Nations Educational, Scientific and Cultural Organization, an international body that exists to further the development of emerging nations. Constituted 16 November 1945 in London by representatives of 44 governments, it is financed by member states of the United Nations who are eligible for membership (*Harrod's Librarians' Glossary* ... 2000: 718)

In this regard, Bell (2001: 1) reported that out of a total of 53, only 29 African countries (55%) have national bibliographies. In Africa, the printed format is by far the most popular. Of the 29 countries with national bibliographies, 27 are available on paper only (Bell 2001: 4) - a situation that makes accessibility and usability very problematic, especially for libraries holding big collections on African languages and literature.

3.7.1.2 Drawing up standards for headings

Standardisation has developed in two main areas:

- the publication of international authority lists
- the formulation of international rules for the structure of authority forms.

(a) International authority lists

The work on standardisation has resulted in the publication of (Bourdon 1994: 72):

- lists of uniform titles:

  - *Anonymous Classics: a List of Uniform Titles for European Literatures*
  - *List of Uniform Titles for Liturgical Works of the Latin Rites of the Catholic Church.*

- lists of names of corporate bodies:

  - *Names of States: An Authority List of Language Forms for Catalogue Entries*
  - *List of Uniform Headings for Higher Legislative and Ministerial Bodies in European Countries*
  - *African Legislative and Ministerial Bodies: List of Uniform Headings for Higher Legislative and Ministerial Bodies in African Countries.*

(b) International rules for structuring authority headings

IFLA sponsored the publication of *Names of Persons* and *Form and Structure of Corporate Headings* to aid consistency through rules for the structure of authority forms in access points in bibliographies and catalogues.

Names of Persons listed national practices regarding the structure of personal names (Delsey 1989: 15). The data collected through an international survey were sent to authoritative organisations on cataloguing in every country.

Under the sponsorship of the IFLA, Eva Verona explored the complex issues relating to corporate headings and their ramifications in the international world of cataloguing conventions. Verona's work served as the basis of deliberations by the Working Group on Corporate Headings and resulted in the publication of *Form and Structure of Corporate Headings* (Bourdon 1994: 72).

Rules were established to ensure consistent headings at international level, but it was impossible to formalise the form and structure or to ensure that an existing heading be used

correctly in all the catalogues and bibliographies around the world. Because headings are also used to facilitate access to bibliographic records, the ”customary form”, as used in the country where the catalogue was established needed to be represented. This resulted in inconsistency and proved harmful in the international exchange of authority records. The work towards defining standards for authority records had thus been undertaken against the background of different headings used in different countries.

Six years after having been appointed to review Verona's work, the Working Group on the Form and Structure of Corporate Headings published the *Final Report on the Form and Structure of Corporate Headings,* written by Ton Heijligers. After identifying the most problematic rules of the original guidelines, the Working Group compared the guidelines with other standards, including AARC2R, and abandoned the idea of updating the guidelines. They proposed a report on the possibilities of guidance on the form and structure of corporate names to be available to developers of a future virtual international authority file and people in charge of online catalogues (Witt 2001: 3).

3.7.2 Standards for authority records

Data from authority records has to be collected to enable any exchange. In 1978, IFLA's Section on Cataloguing, and the Section on Mechanization established a Working Group on an International Authority System with the objectives (Bourdon 1994: 72) to

- discuss and formulate the specifications for an international authority system that would satisfy the bibliographic needs of libraries
- develop the UNIMARC format for the exchange of authority data
- develop methods for the efficient and effective exchange of authority data.

The publication of *Guidelines for Authority and Reference Entries* (*GARE)* achieved the first objective in 1984, and the publication of the UNIMARC format in 1991, the second.

However, the third objective - the efficient and effective exchange of authority data at international level, has not yet been achieved.

It is useful to inspect each standard individually.

3.7.2.1 *Guidelines for Authority and Reference Entries*

The aim of the *Guidelines for Authority and Reference Entries* (GARE) was to standardise the visible presentation of authority records for names of persons, corporate bodies and uniform titles, thus facilitating their readability and the integration of records from various national sources into the files of other bibliographic agencies. The *Guidelines* contained some functions similar to the International Standard Bibliographic Description (ISBD) format, where a standard order for elements through prescribed punctuation was established (Bourdon 1994: 72; Delsey 1989: 20-21).

The ISBD format

- lists the mandatory or optional elements in bibliographic description
- gives precise definitions of the elements
- specifies the sources to be used to collect the information
- prescribes the order of elements within the bibliographic record.

GARE merely provided the following definition of an authority record (Bourbon 1994: 72):

> "It contains not only the uniform heading ... but many also contain an information note explaining the relationship between the heading and related headings; tracings from variant and related headings from which references have been made; cataloguer's notes documenting the source of the heading etc."

However, authority records could contain many other components, for example the form of a name that should be used in instances where an individual or corporate body use different names when publishing documents simultaneously or at different times; the structure of the heading if it contains several elements, etc. The type of information that may accompany authority headings therefore falls mainly within the domain of the bibliographic agencies responsible for these headings. Ideally, the authority record should have been analysed completely, and the mandatory information for establishing an international system of authority control based on the data exchange, have been identified.

Other shortcomings of the GARE document were that the partners involved in international authority exchange, their basic needs, and the long-term objectives of a policy for co-

operation were not identified (Delsey 1989: 22).

In 2001, the second edition of *Guidelines for Authority Records and References (GARR)* was published under the leadership of Isa de Pinedo to provide a single comprehensive and flexible set of rules through examples of all types of material. Two specific issues were considered: legal material and serials (Witt 2001: 3).

3.7.2.2 UNIMARC Authorities format

In 1984, just before the *GARE* document was published, the Working Group on an International Authority System suggested that work on an international exchange format for authority data commence forthwith. This resulted in the publication of the *UNIMARC Authorities* in 1991. The following statement was made in the Preface:

> "*GARE* sets forth the data elements that appear in authority and reference entries in eye-legible form. It thus serves as a foundation for building the machine format *UNIMARC Authorities*, to exchange the specified data" (*UNIMARC Authorities* 1991: 9).

However, no further studies were conducted and, as mentioned earlier, *GARE* overlooked many of the issues that needed clarification to promote consistent international exchange of authority data.

Nevertheless, the aim of the *UNIMARC Authorities* was to facilitate the international exchange of authority data in machine-readable form among national bibliographic agencies (Delsey 1989: 22). Nowhere in the instructions for using the format was it stated that the bibliographic agencies were supposed to exchange authority records of their national headings and no mention of UBC in the introductory chapters obscured the division of responsibility between agencies even more.

In the Preface to *UNIMARC Authorities* it was stated clearly that the preparatory study for the creation of an international system for authority data had not yet been completed. A definition of the required authority data is still needed to ensure that international exchanges are consistent. As Bourdon (1994: 73) stated, in spite of progress during the past thirty years or more, an international system of authority control has yet to be defined.

3.8 DEVELOPMENTS IN AUTHORITY CONTROL

Apart from the development of standards, several interest groups are also working on international co-operative efforts to speed up the process and to make international co-operation a reality.

3.8.1 Access control records vs authority control records

The idea of access control versus authority control has long been debated. Gorman (1979: 127-136) outlined his vision in 1977 at the ALA Information Science and Automation Division Conference on the Future of the Catalogue. The term “access control” was first cited in the *Proceedings of the 1988 LITA Conference,* Boston in an article by Barbara Tillett (1990: 48) called *Access control: a model for descriptive, holding and control records*. Michael Heaney of the Bodleian Library in Oxford was the first person outside the United States to support access control, and gave his definition as “.... bundles together in a single concept both the entity and what it can do...” (Heaney 1995: 139). He views access control as a tool to assist thinking about objects in a broad sense, as well as the important relations between entities and their participation in events.

The access control record may be seen as the next generation authority record and might be considered as a “super authority record” (Barnhart 1996: 2) because of its potential to contain detailed information for indexing. Access control records could be linked to bibliographic records to collocate all manifestations of a work, and to other related access control records to collocate related headings (Tillett 1991: 151).

The key concept behind the access control record is the removal of a single label and the concept of sole authority. The access control record, which evolved from the current authority record, links variant forms without establishing one single form authorised, thus allowing a library or patron to view a heading in the form they prefer, or as a default.

Current authority record - example:

100 1 |aLouw, N. P.|q(Nicolaas Petrus van Wyk),|d1906-1970
400 1 |aVan Wyk Louw, Nicolaas Petrus,|d1906-1970
400 1 |aWyk Louw, N. P. van|q(Nicolaas Petrus),|d1906-1970

400 1 |aVan Wyk Louw, N. P.|q(Nicolaas Petrus),|d1906-1970
400 1 |aLouw, Nicolaas Petrus van Wyk,|d1906-1970
670 |aHis Berigte te velde ... 1939
670 |aSANB, 20 Jan. 1999|b(hdg.: Louw, N. P. Van Wyk (Nicolaas Petrus van Wyk), 1906-1970)
670 |aInfo from Unisa, 20 January 1999|b (Nicolaas Petrus van Wyk Louw; “Van Wyk” is third name)

Hypothetical access control record - example:

400 1 |aLouw, N. P.|q(Nicolaas Petrus van Wyk)
400 1 |aVan Wyk Louw, Nicolaas Petrus
400 1 |aWyk Louw, N. P. van|q(Nicolaas Petrus)
100 1 |aVan Wyk Louw, N. P.
400 1 |aLouw, Nicolaas Petrus van Wyk
670 |aHis Berigte te velde ... 1939
670 |a1906-1970

For example, in the United States the authorised heading (1XX field) can be used interchangeably with a reference (4XX field), since many users would tend to search under Van Wyk Louw, N. P. (in the example above). The 1XX field would be referred to as the default display rather than the authorised form. A key point is that the 1XX field might then not be the same in every catalogue. Dates are removed from the fields (and coded in a separate field). This action emphasises the potential difference between current practice and the use of access control records.

The principle of access control records entirely contradicts the second part of AACR2 where it is suggested that

- the construction of authorised forms of names and titles used as access points should be detailed
- only one form of the heading should be used by all
- variant forms should be linked to the authorised form through references.

Although the philosophy of a single authorised form for a heading provides unity and order

to users of individual catalogues, it presents problems on an international scale.

Even though it may not be perceived as the best choice, a single form of bibliographic information in cataloguing records may be acceptable for economic reasons within a specific country with a predominant language. However, since bibliographic and authority records are shared internationally, the use of a single form may conflict with the principle of serving the needs of other library users (Tillett 1996: 1-2).

The concept of access control records is radical and substantial discussion on an international level and a significant change in AACR2 and MARC formats would be required before it would be possible to implement this concept.

3.8.2 International standards authority data number

According to Taylor (1989: 35), several people including Poncet and Malinconico have mentioned the idea of an international standard authority data number (ISADN) or an international standard author number (ISAN) to uniquely identify an author. The purpose of the number is to identify the object of the authority form (being a personal author, corporate body, subject, etc.) and to serve as a common element linking all the variant forms.

In 1991, Bourdon (cited in Willer 1996: 6) aimed to identify the current obstacles to the international exchange of authority data in her study *International Cooperation in the Field of Authority Data: an Analytical Study with Recommendations*. In her recommendations to IFLA she once again argued for the creation of an ISADN. The success of an international authority system for the exchange of authority data implies the existence of international consensus to define and use an ISADN for each institution that creates authority records. The aim of the number is to identify the entity of the authority record unambiguously on an international scale unimpeded by barriers of language (Delsey 1989: 19). It should not be attributed to the authority form, but to the whole authority record drawn up by the national bibliographic agency that created the record for that particular entry.

The number should be an intelligent number and should indicate

- the organisation that established the authority record

- the nationality of the entity which it represents
- the preferred language of the author
- whether the authority record is provisional or not (Willer 1996: 7).

Over time, the IFLA Universal Bibliographic Control and International MARC Programme (UBCIM) convened several meetings of experts on authority control to discuss Bourdon's recommendations and to investigate a network of interrelated national databases of authority records with a central facility to control the system (Tillett 1996: 5).

During the IFLA Conference in Amsterdam, 16-21 August 1998, the IFLA UBCIM Working Group on Minimal Level Authority Records and International Standard Authority Data Numbers (WG MLAR/ISADN) met twice. The decision was taken to postpone the idea of ISADN, because of concerns about the expenses involved in maintaining such a numbering system (IFLA UBCIM Working Group on Minimal Level Authority Records ... 1997: 3).

In April 1999, an IFLA Working Group on Authority Data, known as FRANAR the acronym for Functional Requirements and Numbering Authority Records, was established (Plassard 2001: 1). At their meetings during the IFLA Annual Conference in Bangkok in 1999, Jerusalem in 2000, and Boston 2001, FRANAR revisited the question of ISADN. The Group unanimously adopted a basic principle that no additional standard number should be created and that they would try to use existing numbers if possible. Several issues are still outstanding and under discussion (Bourdon 2001: 6).

In the latest report, Bourdon (2002: 7) said that the aim is not to ideally define an ISADN, but to examine the feasibility of an international number for authority records.

That is to

- identify the possible uses and users of such a number
- determine for what types of authority records an ISADN should be necessary, and
- think about how to structure and manage this number

The issue of an ISADN will not be resolved soon.

3.8.3 Minimal level authority records

The IFLA UBCIM Working Group on Minimal Level Authority Records and ISADN (1997: 2-3) suggested that the international sharing of authority information would greatly assist libraries and national bibliographic agencies to reduce the costs of cataloguing while providing greater possibilities of shared bibliographic records. Although the Working Group was created under the auspices of UBCIM, it realised that the IFLA goal of Universal Bibliographic Control of using the same form for headings to be used globally was not practical. Reasons justifying local practice were that users have a right to have access to the familiar form of names and readable scripts in forms that they are most likely to search in their catalogue or national bibliography. The Working Group recognised the importance of the preservation of national rule-based differences in authorised forms for headings that were used in national bibliographies and library catalogues to best meet the language and cultural needs of the users in different countries.

To facilitate the international sharing of authority data, the Working Group proposed that each national bibliographic agency make their authority files available on the Internet, using the IFLA home page to register current information about availability and restrictions. Such a system would permit multi-file searching to be conducted across a range of authority files or a single national authority file, as desired.

It was necessary to

- identify the basic elements
- provide a definition for each
- determine which of these already existed in communication formats
- suggest recommendations for additions to improve the formats.

The Working Group defined those elements that they considered essential for the international sharing of records and circulated a document amongst experts for comment before making it available publicly (Plassard 1997).

During the IFLA Conference in Bangkok, August 1999, the Functional Requirements and Numbering of Authority Records Working Group (FRANAR) met for the first time. The objectives of this Working Group were to develop functional requirements for minimal

authority records. They were to build on the work of the Working Group on Minimal Level Authority Records (Bourdon 2001: 1; *CatalogingTopics at IFLA's* ... 1999: 5)

In 1992, Bourdon (1992: 136) said that the contents and functions of a name authority record had never been defined with the precision used for bibliographic records. This issue was still under discussion at the 67th IFLA Council and General Conference in Boston, 2001. FRANAR needs to answer the following crucial questions to determine the elements required in authority records (Bourdon 2001: 8-9):

- What are the functional requirements of authority records?
- Which are the entities concerned? Is it personal and corporate names only? What about uniform titles, series and subjects?
- What are the data elements that constitute an authority record?
- What is the use of an authority record? Who are the users of authority records?

Bourdon (2001: 9-10) identified problem areas with regard to minimal level authority records and the reasons for the exceedingly slow progress in this regard:

- FRANAR members were all professionals from the library environment and needed to be joined by professionals from archives, museums, etc.
- FRANAR worked within a very limited budget, which inhibited using outside consultants. This posed a major problem, because data modelling required special techniques unfamiliar to FRANAR members.

3.8.4 CoBRA+

Computerised Bibliographic Record Actions (CoBRA) was established in 1993 under the auspices of the conference of European National Librarians as a project involving national libraries and bibliographic agencies in Europe (*Harrod's Librarians' Glossary* ... 2000: 159). The initial project, extended to CoBRA+, was funded by the European Commission (EC)[1] from June 1996 until the beginning of January 1999 (Clavel-Merrin 1999: 2; Dale 1999: 161).

The idea was to stimulate international bibliographic services provided by national agencies and to encourage coherence between national initiatives in the EC. Over time, the programme focus broadened to incorporate issues such as electronic publications and

related developments. Access to resources, resource sharing, user needs and the use of communication networks (CoBRA+ 1998b: 1) were emphasised. Although EC funding had expired, the partners of CoBRA+ agreed that the CoBRA Forum would continue to meet and that they would report to the Conference of European National Librarians (CENL) (Clavel-Merrin 1999: 2).

3.8.4.1 Objectives of CoBRA+

The key objectives of CoBRA+ were to

- disseminate information on the progress of ongoing and new projects and to facilitate and encourage the exploitation of the results of studies and projects.

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[1] The European Commission is the executive arm of the European Union (*Harrod's Librarians' Glossary* ... 2000: 276-277).

- examine the problems of national libraries in the areas of legal deposit, collection development, user access to and the long-term availability of electronic publications.
- promote resource sharing by providing information services and access to collections through the use of networks.
- examine bibliographic control and associated access and exchange issues, including the use of metadata for electronic resources. Gorman (2001: 311) defined metadata as "data about data".

Information on the partners, the organisation and the projects of CoBRA+ is available at: http://www.bl.uk/information/cobra.html

Dale (1999: 165-166) described the CoBRA+ Project as an outstanding success. The spread of activities collectively inspired a spirit of co-operation between the various partners. Apart from co-operation between libraries, the activities also led to co-operation and understanding between libraries and other organisations such as bibliographic agencies, research institutions, library system vendors, etc. Relationships were developed, and co-operation continued in other non-CoBRA activities. The researcher is of the opinion that this could only be for the common good.

3.8.4.2 AUTHOR Project

The CoBRA+ Project relevant to this study is the AUTHOR Project - a feasibility study into the networking of national name authority files, managed by the Bibliothèque Nationale de France. It is the first study on the trans-national exchange of authority records.

Project members realised that international co-operation in the field of bibliographic records was flourishing. The national name authority file records contain access points that are managed by automated authority files. Attempting to use authority records in the same way as bibliographic records seemed logical, especially because of the time-consuming aspect of authority work and the requirement for information that is not necessarily widely or readily available.

National name authority data are available through national authority files. Under the auspices of each national bibliographic agency, a national name authority file was created to manage the official current national bibliography. This file could be expanded through input from a single agency or from a number of institutions working collaboratively at a national level.

The value of the availability of authority records internationally, is that it enables libraries to utilise records already created. Author access is an essential feature of bibliographic files. If the established form of an author's name and references are available electronically these can be used indefinitely. The wider availability of national authority files should thus promote the use of databases across national boundaries.

At present in the European Union (EU)[1] some national authority files are automated, while others are manual or are in the process of conversion. The level of information and formats are also equally diverse, ranging from CD-ROM, microfiche, and print. Libraries thus have no comprehensive or uniform access to other countries' national authority files. The AUTHOR Project was set up with funding from the European Commission's Libraries Programme to investigate the feasibility of the international exchange of national name authority files, created and maintained by the national libraries and agencies in Europe, thus increasing efficiency and reducing costs.

The objectives of this Project (CoBRA+ 1998a: 2) were to

- investigate the feasibility for the trans-national exchange of national name authority files and the technical means for achieving this.
- examine the problems of converting existing national data in EU national libraries

to the UNIMARC Authority format.

- test and evaluate the first two objectives in practice.
- stimulate greater effectiveness and sharing of national bibliographic resources at European level.

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[1] The Union of European Countries developed out of the European Coal and Steel Community (founded in 1951), the European Atomic Energy Community and the European Economic Community (both founded in 1957). The first countries in the Community were Belgium, France, Germany, Italy, Luxembourg and the Netherlands. In 1973 the United Kingdom, Ireland and Denmark joined and in 1981 Greece. In 1986, Spain and Portugal joined, and in 1990 so did the former East Germany. The Treaty of Maastricht in 1993 changed the name of the Union of European Countries to the European Union. The latest countries to join included Estonia, Slovakia, Poland, Hungary and Lithuania. Slovakia, Malta, Turkey and Cyprus also wish to become members (*Harrod's Librarians' Glossary* ... 2000: 276-277)

3.8.5 Linking and Exploring Authority Files

3.8.5.1 Project synopsis

Linking and Exploring Authority Files (LEAF) is a project to develop a model for the architecture of a distributed search system to harvest existing name authority information for use by institutions involved in the preservation and use of the European cultural heritage (*LEAF* 2001: 1).

This three-year project commenced in March 2001 and is co-funded by the European Commission Information Society Technologies Programme. The Project Consortium consists of the co-ordinator (The Berlin State Library, Berlin, Germany), ten full partners and four associates (LEAF Project Consortium (2001: 1). A list of participants is available at http://www.crxnet.com/leaf/partners2.htm

The increasing traffic between heterogeneous data and standardised information, has led to wide acceptance that the requirement of high quality authority file information is becoming increasingly important. Anonymity, as mentioned in the introduction to this Chapter is an example of the problem. A diary, for example, is of limited use if the author cannot be identified.

While national authority files exist in the library sector and attempts are being made to link such files, no national or international name authority files are used in archives, museums

and documentation centres, and no standardised European name record format is available.

The use of authority files is not widespread and the public are generally unaware of the existence of authority file information and the benefits. Big organisations and institutions participating in name authority file projects usually take advantage of the use of existing authority files. Smaller institutions use local files to address their special requirements and other institutions are generally unaware of the content of such files.

A significant degree of research and development has been undertaken in distributed virtual catalogue systems, but none of these activities have included an attempt to consolidate the content of the data for use in union with search and retrieval gateways. LEAF provides a totally new approach as a solution to this problem (*LEAF Project synopsis* 2001: 1).

3.8.5.2 Objectives of the LEAF Project

In the LEAF Project, a model for architecture is to be developed for

- a distributed search system
- harvesting existing name authority information (personal and corporate names)
- automatically establishing a common name authority file relevant to the cultural heritage of Europe.

The project results will be implemented through extending the international online search and retrieval service network of OPACs, which resulted from the highly prestigious and successful MALVINE Project that provides information about modern manuscripts and letters.

With the LEAF model, the MALVINE system will be expanded into a global multinational and multimedia information service on persons and corporate bodies. Through the use of authority file information to ensure that the representation of the objects in question is of high quality, the model architecture is intended to be applicable to other kinds of cultural and scientific objectives and data. The LEAF demonstrator will thus provide a valuable example of how dynamic user interaction with the cultural and scientific content can considerably enhance the user experience (*LEAF Project Synopsis* 2001: 1).

3.8.5.3 Innovation

The LEAF Project plans to provide a model for a common authority file, defined and created by real user queries. This approach takes into account, for the first time, that name authority information is the most important starting point for any activity concerning the documentation of the European cultural heritage. The model also assumes that different preconditions are applicable to smaller and bigger institutions, and that differences in regional or national practices are the greatest obstacle to effective co-operation in any sector of work on the common European cultural heritage.

LEAF will be demonstrated in a search and retrieval data context on modern manuscripts. This scenario will depend largely on the use of biographical information and/or information about corporate bodies. The user will not only benefit from this ability of LEAF, but will also be able to contribute to the existing information, thus enhancing the data quality. Each user query will automatically create a name record at the LEAF site that holds the information of available authority records about the person or corporate body. In addition, the system will provide information on institutions that own relevant material and/or information related to a search. A common name authority file will be developed according to user requests (*LEAF Project Synopsis* 2001: 2).

3.8.5.4 Measure of success

The success of LEAF will be measured according to the following criteria *(LEAF Project Synopsis* 2001: 2):

- **Technical**: satisfying the technical system requirements of the demonstrator regarding technical design and approach.
- **Requirements**: using a demonstration period for the project to measure the success of the user tests against initial pre-selected test criteria and subsequent analysis.
- **Feedback**: analysing feedback from users during the trial phase.
- **Dissemination feedback**: gauging the degree of interest in the project from other projects, communities, standard bodies, etc.

The project will be conducted in three phases (*LEAF Project Synopsis* 2001: 2)

- Phase 1: Requirements and analysis.

- Phase 2: Software development and testing.
- Phase 3: Evaluation and validation.

Although the project is still in an initial phase, it is important that everyone involved in authority control be aware of its progress. It is the first time that institutions such as museums and archives have shown real interest in authority control and its impact on users. A timetable of the progress expected, is available at http://www.crxnet.com/leaf/public.htm

3.8.6 Name Authority Co-operative Program

The Library of Congress (LC) engages in various kinds of co-operative activities and the Program for Cooperative Cataloging (PCC) was formed in 1995. The PCC is an international co-operative programme, co-ordinated by LC with participation of libraries worldwide. The purpose is to expand access to collections through cataloguing, to a level that meets standards that are mutually accepted (*Harrod's Librarians' Glossary* ... 2000: 561). It currently has four components (Maxwell 2002: 285):

- Name Authority Cooperative Program (NACO)
- Subject Authority Cooperative Program (SACO)
- Bibliographic Record Cooperative Program (BIBCO)
- Cooperative Online Serials Program (CONSER).

The Library of Congress designed Funnel membership to attract institutions without resources to become full PCC members. (Program for Cooperative Cataloging 2002). The Civil Rights in Mississippi Digital Archive (Graham & Ross 2003: 38-39) is a good example of Funnel membership at work.

The Name Authority Cooperative Project (NACO) is one of the most successful projects of LC. Authority records prepared by co-operating libraries are integrated into a national authority file (Burger 1990: 64). As NACO participants, libraries agree to follow all the internal cataloguing procedures of LC and appropriate *Library of Congress Rule Interpretations* (Program for Cooperative Cataloging 1998a: 2; Byrd & Sorury 1993: 108-109). After formal training, a participant's records are reviewed until such time that the

records satisfy the established accuracy rate. Subsequently, a small periodic sample of the contributions ensures that quality standards are maintained (*NACO Changes* ... 1987: 28).

An agreement between LC and the United States Government Printing Office (GPO) to use and maintain a common authority file resulted in the establishment of NACO in 1977 (*NACO Participants'* ... 1996: 1). The initial goal was to create a national authority file to accommodate the requirements of all national libraries. NACO's immediate goal was to facilitate the transformation of the LC authority file into a nationwide authority file to reduce duplication nationally. Selected libraries were allowed to contribute certain categories of headings to share the burden of authority control. State libraries in the United States were considered to supply LC with authority records for names of state corporate bodies. Some state libraries also supply corporate and personal name headings. Texas State Library was the first of this group to join the project (Riemer & Morgenroth 1993: 134).

The next group invited to participate was selected in consultation with the Research Libraries Group (RLG) and included major libraries of the National Program for Acquisitions and Cataloging (NPAC). Most of the South African headings in the LCNAF were submitted from the Africana Collection of Northwestern University, a member of the RLG (Clack 1990: 19).

The third group to join the project was the Cooperative Conversion of Serials (CONSER) libraries, which assumed responsibility for serials (*NACO Celebrates* ... 1988: 28).

Some unusual contributors to NACO include University Microfilms International (UMI), with special contributions from its retrospective Canadian project and its Wing Microform Collection. The Wing Microform Collection project is part of the OCLC Major Microforms Project, aimed at encouraging institutions to catalogue the individual titles of major microform sets and to add the records to the OCLC database. The authority records are included in the LCNAF.

Retrospective Music (REMUS), a consortium of eleven libraries with a strong interest in music is another unique group. REMUS is a contributor to NACO, since all member libraries work under the co-ordination of the University of Wisconsin, Milwaukee (Clack 1990: 20).

Since the eighties, NACO also co-ordinated the contribution of bibliographic records (Maxwell 2002: 261) and on 1 October 1987 changed its name to the National Coordinated Cataloging Operations to reflect the scope of NACO activities more accurately. However, the acronym NACO was retained because it was so well known in the library community (Riemer & Morgenroth 1993: 128; *NACO Changes* ... 1987: 26).

In the 2002 fiscal year, participants in the NACO Programme contributed 142 555 name authority and 9 419 series authority records to the LCNAF (Program for Cooperative Cataloging 2001). Since June 2000, eighteen South African libraries have become NACO participants and in the 2002 fiscal year contributed 4009 authority records (Program for Cooperative Cataloging 2002).

At the end of the 2002 fiscal year, the 48 international participants in NACO contributed 21 368 new names to the authority file. That is 13.16% of all NACO contributions (Program for Cooperative Cataloging 2002).

The majority of the participants contribute authority records through the Linked Systems Project (LSP). LSP utilises the computer-to-computer links between OCLC, RLIN and LC and provides NACO participants with online access to a complete and current copy of the national authority file. Libraries create or change records in an online file of their particular bibliographic utility through LSP. After review, the records are contributed to the national authority file and redistributed to OCLC and RLIN (Maxwell 2002: 256; *NACO participants'* ... 1996: 1).

The NACO Project is a giant step forward in sharing the costs of authority work through a shared authority file that is widely available through OCLC and RLIN.

The situation in South Africa is as follows: after Sabinet Online had started using the Innopac library system in 2000, authority records could only be added via OCLC. The reasoning was to ensure that only records of a high quality were loaded onto the SaCat database (Rabe 2002). This decision had a major influence on the subsequent development of authority control in South Africa. The OCLC authority file is a closed file, and only NACO participants may create or change records. Massive duplication of effort and cost to consortium libraries made the creation of authority records via in-house library systems an unviable option and three consortia opted for NACO training. The results are that only a few libraries in South Africa can create new authority records needed in South

Africa.

3.8.7 Anglo-American Authority File

In May 1993, Pat Oddy of the British Library (BL) and Sarah Thomas of LC decided in principle that the two institutions would create a single authority file - the Anglo-American Authority File (AAAF). Economic necessity and practical implications were considerations for this move (Danskin 1996: 57). The Cataloguing Policy Convergence Agreement (CPCA) was signed in 1996 (Byrum 2000: 116).

The authority file of LC became the Anglo-American Authority File (AAAF) in 1994 with more than a million authors of the more than 100 million works held by the two libraries (Ellero 2002: 80; *BL/LC Unite*... 1994: 353). In the *Cataloging Policy Convergence Agreement* of 26 February 1996, the British Library and the Library of Congress formalised terms to govern the use and adaptation of each other's authority records. While each library need not await the creation of authority records at the request of the other, relevant Libray of Congress Rule Interpretations (LCRI) were revised to include special consideration of British practice in spelling, punctuation and personal names (Franks 2000: 39). During a visit of the researcher to the Library of Congress in 1996 it became clear that the co-operative project between the Library of Congress and the British Library was not without its problems. The two libraries had "agreed about certain issues, but agreed to disagree" on others, for example romanisation, the usage of the abbreviation for Department, etc." (Marais 1996: 3).

Negotiations are underway with the National Library of Canada and the Australian Bibliographic Network for the addition of their headings into the AAAF (Cristán 1994: 125; *LC Name Authority File Expanded* ... 1994: 293).

Danskin's (1997: 32) review and evaluation of the AAAF programme illustrated the commitment of time and resources required to integrate authority data created by different national bibliographic agencies. The gains to be achieved through the use of the AAAF seem to justify the investment of resources.

3.9 AUTHORITY CONTROL IN SOUTH AFRICA

Snyman (1999: 148-195) detailed all the authority control role players in South Africa.

However, this study concentrates only on Sabinet Online and the *South African National Bibliography* as potential sources for obtaining authority records, because it is the only source for good quality authority records in South Africa.

3.9.1 Sabinet Online

In 1983, the South African Bibliographic and Information Network (Sabinet) was established as an independent, non-profit membership organisation and supplier of online bibliographic references to materials in South African information services. In 1997, Sabinet became a private company, Sabinet Online (Pty) Ltd. (*Harrod's Librarians' Glossary* ... 2000: 644; Snyman 1999: 149).

The mission of Sabinet Online (Pty) Ltd. is "to enable value-added electronic access to information to the serious information user, locally and globally" (Sabinet Online 1997: 2). Currently one hundred and forty six Sabinet members use the SaCat services, whilst 158 members use the World Cat Services of OCLC through Sabinet Online (Sabinet Online Standards Committee 2002: 1). Members include educational institutions such as universities, technikons, state departments, research institutions and provincial and public libraries. Other members include private institutions such as banks, law firms, auditors, mining companies and pharmaceutical firms (Sabinet Online 1997: 1).

A primary strategy of Sabinet Online is to construct and provide a national information infrastructure to complement and interface with various library systems. They also support national resource sharing infrastructure through a national union catalogue (SACat) of high quality South African bibliographic records and holdings to support shared cataloguing and acquisitions (Malan 1998: 4).

Since May 2000, Sabinet Online has been using the Innopac Library System (Rabe 2002) with the following implications:

- Sabinet Online became the OCLC agency in South Africa allowing users to do original cataloguing, upgrade records, download high quality bibliographic and authority records, and to add and maintain holdings on OCLC.
- The SACat database was upgraded to a national union catalogue of bibliographic records with holdings in MARC21. Incomplete records (for example records without subject headings) were compared with records on other catalogues to enhance the

quality of the catalogue.

- The full catalogue was sent to a vendor in the United States for authority control. Eight hundred and sixty thousand and fifty-one name authority records and 154 749 subject authority records of LC were loaded onto the catalogue (Rabe 2002).

Considerable overlap in the requirements for regional union catalogues and a national union catalogue became evident. Consortia were seeking software solutions for their resource sharing and shared cataloguing needs, a situation that was further affected by a strong requirement for national co-operation and a fear that some regions may start isolating themselves and their resources from the rest of the country by focussing on regional union catalogues. It thus became urgent to

- avoid unnecessary duplication and costs
- ensure participation in the national union catalogue
- optimise the use of available funding and expertise in the country.

Sabinet Online plays an important role in the establishment, development and support of resource sharing and union catalogues in South Africa as a functional system and platform for a national union catalogue and regional union catalogues in South Africa.

3.9.2 South African National Bibliography

Until November 1999, South Africa had two national libraries, the South African Library in Cape Town and the State Library in Pretoria (Lombard & De Beer 2000: 23). Both libraries were legal deposit libraries, but the main purpose of the South African Library was the preservation of documents and manuscripts, while the State Library was responsible for the compilation of the South African National Bibliography (SANB) (Behrens 1994: 62).

In 1997, the Legal Deposit Act, No. 17 of 1982 (Behrens 1994: 63) was replaced by a new Act on Legal Deposit, No. 54 of 1997 (Snyman 1999: 120), which nominated the State Library (now known as the National Library of South Africa (Pretoria)) as one of the agencies for the legal deposit of printed materials, and the National Film, Video- and Sound Archive as the sole agency for audio-visual material. The Pretoria Division of the National Library of South Africa, with the help of other libraries, still remained responsible for the compilation of the SANB.

The State Library, as the national bibliographic agency, created name authority records on the closed Dobis/Libis library system (De Klerk 2001: 3) to compile the SANB. De Klerk (2001: 4) described the authority control staff of the SANB as:

> "... knowledgeable on South African authors, because they can see what others cannot, as they have access to legal deposit copies of an author's repertoire."

Because the National Name Authority File of the National Library of South Africa was not available for use by other South African libraries, libraries that were administering authority control experienced serious problems. Also, by its own admission, limited financial and human resources at the National Library delayed the production of South African bibliographic and authority data, with negative results (De Klerk 2001: 6). More discussion about these and other problems takes place in the next section.

3.9.3 Problems experienced with authority control in South Africa

Authority control in South Africa has not developed alongside other library activities such as bibliographic description or interlending, and is still in its infancy. The reasons why authority control has lagged can be summarised as follows:

- **Short-sightedness on the part of library managers**: Decisions were often made without considering long-term implications, such as refraining from purchasing, developing or maintaining computerised authority files. Computerised authority control thus started off on the wrong foot.
- **No development of a MARC authority format**: SAMARC was developed to meet the needs of bibliographic description in South Africa. An example is bilingualism in bibliographic records. A similar development regarding authority format was lacking. Because it was impossible to exchange or import authority records, interim measures to accommodate authority records in computerised catalogues were inadequate. This resulted in the exchange of bibliographic records only. Libraries refrained from creating authority records because it was too time-consuming and expensive and it was not possible to use existing electronic records available from the Library of Congress or other sources.
- **Lack of cohesion**: South Africa did not have an institution such as LC in the United States to take the initiative in the development of authority control. A lack of

combined effort resulted in institutions working in isolation.

- **South African National Bibliography**: Authority records on SANB were created on the Dobis/Libis library system, one of the few automated library systems available to South African libraries during the international sanctions of the eighties. The Dobis/Libis format is not compatible with current international automated library systems used in South African libraries and Dobis/Libis records are therefore not easily available to South African libraries (De Klerk 2001: 5). Authority headings are available in the printed SANB and electronically on Sabinet, but variant headings for the same entry exist because authority records are not prescribed or readily available.

- **Disparity between libraries**: Libraries are at different levels of development and have different authority control requirements. The most developed libraries in South Africa need to establish authority control policies and practices in line with international developments. This may create uncertainty and confusion in the smaller libraries that lack the resources to follow suit.
- **Change in cataloguing codes**: The pre-AACR2 authority format of some names differs from the AACR2 format. Libraries place different emphasis on the importance of the AACR2 format. Some libraries view the pre-AACR2 format headings as incorrect, whilst others argue that although incorrect, it is acceptable in a computerised environment as cross-references lead the user from the unused to the used heading. This discrepancy however, presents serious problems regarding the exchange of records.

As a result of these factors, South African libraries are faced with a backlog of authority work, such as headings without authority records, different formats for the same author, spelling errors, etc.

The previous section highlighted problems experienced with authority control in South Africa. In Chapter Seven, the structure of a Central Office for Authority Control will be established within an academic consortium to address the problems mentioned above.

3.9.4 Sources for authority records

Maxwell (2002: 255-258), Irwin (1993: 56) and Maccaferri (1992: 154) identified three ways of exercising authority control:

- in-house creation and maintenance of authority files
- retrieval of authority records from other sources
- outsourcing authority work.

These are discussed briefly in the following section and are used as a basis for the establishment of a Central Office for Authority Control as described in Chapter Seven.

3.9.4.1 Original creation of authority records

To establish and maintain the highest standards of authority control over their entire bibliographic database, libraries need to create their own authority records. Three important requirements are:

- Sufficient experienced professional personnel.
- An online system with powerful authority control and editing features.
- Access to a good reference collection, including national bibliographies, etc.

The advantage of such a system is that the library is free to use its choice of standards and that it has direct access to bibliographic items to resolve problems. Such libraries are able to create authority files best suited to the needs of their users (Maccaferri 1992: 160) and guarantee consistency. High cost is a disadvantage of in-house authority control.

3.9.4.2 Use of existing authority records

To make use of available authority records, libraries need

- access to a bibliographic utility with good quality authority records
- an in-house system with an import/export facility.

Although this method is expensive (Maxwell 2002: 255), it is less costly than creating records from scratch. The infrastructure required to obtain these records can be utilised for other cataloguing and library functions such as interlending. It enables semi-professional staff to search for and download authority records.

A disadvantage may be reliance on Internet connections and remote system availability. Downtime could cause loss of productivity and considerable frustration to staff and library users.

3.9.4.3 Outsourcing of authority control

Outsourcing, or the use of outside contractors as part of business operations, has been implemented in the motor industry since the 1980s. It became an issue in the library community after Wright State University eliminated its cataloguing department in 1993. This was followed by the outsourcing of the entire library of the law firm Baker & MacKenzie in 1995 and the elimination of both cataloguing and selection from the entire public library system of the state of Hawaii in the same year (Sweetland 2001: 164).

There is little consensus on the actual meaning of the term outsourcing, a problem possibly related to the use of terminology from outside librarianship (Hill 1998: 116; Miller 1995).

Abel (1998: 76) defines outsourcing as the contracting out of a variety of backroom functions to suppliers in the private sector. He uses the example of the use of Library of Congress services, although LC is definitely not in the “private sector”.

Dunkle’s (1996: 33) definition: “accessing expertise and resources from an external organisation to supplement or take full responsibility for a function that was previously accomplished in-house”, implies that a function never carried out in-house (such as binding of periodicals) in a particular library would not be so defined.

Some definitions seem rather odd, for example Milunovich (2000: 204) “contracting out a portion of a library’s operation to a commercial entity to realise a cost saving or other benefit that won’t occur if the operation is performed in-house”. This definition suggests it is only “outsourcing” if it works well.

For the purpose of this study, outsourcing can be defined as the use of external contractors to provide specialist activities such as authority control (*Harrod’s Librarians’ Glossary* ... 2000: 545). Activities can be outsourced to commercial firms, other libraries or private persons.

Libraries that lack the resources to create their own authority records may view the services of a vendor as an attractive option, but it is not necessarily less costly (Jennings 2002: 26; Maxwell 2002: 256-257; Maccaferri 1992: 161). No company in South Africa supplies such services, and libraries are forced to use vendors in the United States or Europe. The exchange rate makes this rather expensive and it is not possible to obtain authority records on South African authors through these services.

Vendor authority services emphasise batch machine processing. However, most vendors offer manual inspection and editing of unmatched headings. The process usually begins with the normalisation of the headings with regard to spacing, punctuation and capitalisation to increase the likelihood of matching a heading or reference in the vendor's authority file. Links are then established between matching bibliographic and authority record headings, while headings that match a "see" reference, are replaced by the authorised heading from the authority record. If headings are not suitable for machine manipulation, libraries may request manual inspection (Aschmann 2003: 38-39; Taylor, Maxwell & Frost 1985: 198).

3.10 SUMMARY

Gorman (1995: 34) expressed scathing views about the Internet:

> "The net is like a huge vandalized library. Someone has destroyed the catalog and removed the front matter, indexes, etc. from hundreds of thousands of books and torn and scattered the remains... 'Surfing' is the process of sifting through this disorganized mess in the hope of coming across some useful fragments of texts and images that can be related to other fragments. The net is even worse than a vandalized library because thousands of additional unorganised fragments are added daily by the myriad cranks, sages and persons with time on their hands who launch their unfiltered messages into cyberspace."

As long as the important task of authority control is maintained this will not happen in libraries. The purpose of authority control is to bring together all the variations of an access point. References link variant forms and guide the user in his search, regardless

of the different forms of a name. Authority control supports information storage and retrieval by maintaining the bibliographic file to ensure consistency and quality.

Authority control affects everybody who uses library catalogues, either as users or as library staff. Because it requires intellectual input to create and maintain, authority control is time consuming and expensive. However, the time and money saved by a good, functional authority file far outweigh the costs involved. Without authority control, information would be lost and information storage and retrieval would not be effective.

In this Chapter, authority control and its functions within the catalogue was discussed. The advantages was discussed and the different users of the authority file identified. Several international standards in authority control were mentioned and recent developments within the field of authority control were discussed. The most important development for this study is the Name Authority Cooperative Program of the Library of Congress, because of its impact on South African libraries.

Prompted by the fact that South African libraries must be NACO participants in order to create authority records on OCLC, a cost study was necessary to determine the cost involved in creating and changing authority records on OCLC. In Chapter Five a study into unit costs in South Africa is described. In order to fully describe the process of authority control, it is necessary to describe union catalogues, because a union catalogue facilitates the “re-use” of authority records. An authority record created by a library within an academic library consortium using a union catalogue, is available for use by other consortium members. Union catalogues are the topic of discussion in Chapter Four.

CHAPTER 4

UNION CATALOGUES

4.1 INTRODUCTION

Traditionally, library and information workers compile information files, such as catalogues, accession lists and lists of patrons. Most libraries use databases or files for information gathering and sharing activities, such as the compilation of union catalogues.
Early computer-based systems used in businesses and also in libraries, contained files or databases (a series of related and formatted records) for data relating to personnel, finances and inventories. Because databases originated in the field of computer science, some confusion exist regarding the use of the terminology in the library and information field.

In this Chapter the meaning of important terms in information, such as fields, records, files and databases, network and bibliographic utilities, as well as union catalogue terminology are defined. The Z39.50 protocol and the advent of the virtual catalogue are discussed. The implications of Z39.50 for libraries and the requirements for a virtual union catalogue are discussed at the end of this Chapter. The purpose of this Chapter is to determine the role of union catalogues with regard to authority control.

4.2 DEFINITIONS

Basic definitions concerning database and catalogue elements are provided for the sake of clarity.

4.2.1 Fields, records and files

The two types of **fields** are:

- **Fixed-length fields** - contain a predetermined number of characters. Since the length is predictable, it is not required that the beginning and ending of fixed-length fields be indicated. Fixed length fields are economical and allow quick and easy coding of records. The length of the field remains the same for each record. Data such as international standard book numbers (ISBN), publication date, language and country

codes are ideal for fixed-length fields.

- **Variable-length fields** - the field length differs from record to record. This necessitates flagging to allow the computer to recognise the beginning and end of fields. The MARC record format was created for this purpose (Rowley 1998: 102-103; Rowley 1996: 159-160).

A **record** is a combination of fixed and variable length fields. In computer terms, a record is a collection of related items of data; each record representing a unit of information (*Harrod's Librarians' Glossary* ... 2000: 614-615; *International Encyclopedia of Information and Library Science* 1997: 394).

A cataloguer defines a record as a catalogue entry that provides the link to the information source required by the user. For example, an authority file record will contain all the information relating to a single person or single corporate body (Rowley 1998: 102; Rowley 1996: 158-159).

A **file** is a collection of written, typed, printed or machine-readable records with clearly defined relationships, arranged in a systematic order (*Harrod's Librarians' Glossary* ... 2000: 292). An authority file, for example, consists of a number of authority records.

A **database** may contain a number of linked files. An example is a library catalogue, where the authority file and a bibliographic file form the database (Rowley 1998: 102; Rowley 1996: 158-159). Databases are discussed extensively in the next section.

4.2.2 Databases

4.2.2.1 What is a database?

Data can be defined as coded and structured information for subsequent processing, generally by a computer system (*Glossary of Computing Terms* 1989: 14).

A database is a systematically ordered collection of accessible structured data. This body of information, stored in a computer system, is managed by using the facilities of a database management system. All accessing and updating of the information is done via the facilities provided by the data management software (*Dictionary of Computing* 1997: 119; *International Encyclopedia of Information and Library Science* 1997: 100; Cawkell

1993: 56).

Compared to manual filing systems such as library card catalogues where users have to search sequentially according to search criteria, a database could be regarded as a computerised filing system with additional search facilities and possibilities to combine search elements. For example to find Shakespeare in a card file, a user has to thumb through the ordered "S" cards. All of Shakespeare's works will be listed alphabetically under "S" and the user has to examine each card to find a specific work. A computerised database enables additional search features. A keyword search combining more than one search criterion can be conducted, for example, a search "Shakespeare" AND "*Hamlet*" AND "French" will automatically retrieve copies of a French translation of Hamlet.

There is a clear distinction between a file and a database:

- A file is defined as a collection of records of a certain type, for example authority records in an authority file.
- A database is a collection of files of several types with a clearly defined relationship between the different types. An example is a library catalogue - a database comprising a bibliographic records file and an authority file (*Encyclopedia of Computer Science* 1993: 413).

4.2.2.2 Types of databases

Databases are stored on magnetic or optical media such as disks, and accessed either locally or via remote access. Local databases contain information that is valuable to the organisation, for example patron lists, staff files and financial information. Databases can also hold information such as abstracts and indexes of journal articles, full text of reports, encyclopaedias and directories that are accessible publicly. Information in such databases can be shared within an organisation or by a group of organisations. Different types of databases can be distinguished.

(a) Source databases

Source databases contain original data and electronic documents. After accessing a source database, the user should have obtained the required information without having to seek elsewhere. Source databases are often also available in printed form and can be

grouped according to their content (Rowley 1998: 105; Rowley 1996: 162-163):

- **Numerical databases** - contain data of various kinds, such as statistics and survey data.
- **Full-text databases** - examples are newspaper items, technical specifications and software.
- **Text-numeric databases** - a mixture of textual and numeric data, such as company annual reports.
- **Multimedia databases** - a mixture of different types of media, including sound, video, pictures, text and animation.

(b) Reference databases

Reference databases refer the user to other information sources such as a document, an organisation or an individual. Examples include (Rowley 1998: 104-105; Rowley 1996: 161-162):

- **Bibliographic databases** - include citations or bibliographic references, and sometimes abstracts of works. These databases provide the user with information regarding availability, the kind of source where items may be located (for example journal titles, conference proceedings) and a summary of the original document in instances where an abstract is provided.
- **Catalogue databases** - indicate the holdings of a given library or group of libraries. Such databases list the monographs, journals, music scores, etc. that the library has in stock, but do not provide much information on the contents of such documents. A catalogue database is a special type of bibliographic database, and since its orientation is rather different from that of other bibliographic databases, it is useful to identify it as a separate category.
- **Referral databases** - offer references to information or data, such as the names and addresses of organisations and other directory-type data.

Bibliographic databases contain a series of linked bibliographic records (*Harrod's Librarians' Glossary* ... 2000: 68) with each record typically containing some combination of the following components:

- record number

- title
- author(s)
- language
- classification number
- subject headings or indexing words
- location.

These components might be described as document references or citations. The components do not provide the information or the text of the source document, but indicate where the information might be found.

Some of the above components are primary retrieval keys (for example author name, title words, subject headings). It is in this context that authority control becomes an important aid to retrieval.

Secondary retrieval keys are used to limit the set of records retrieved during a search. Typical secondary retrieval keys are the language of the text, date and place of publication and local holdings information (Rowley 1998: 106). The remaining elements of the record are merely displayed or printed as additional user information and may prove useful in judging relevance or location.

The above makes it clear that an electronic library catalogue qualifies as a database. The library catalogue is a part of a library system. Other features within the system are patron lists, the lending module, serials maintenance, etc. Usually co-operating libraries share only their catalogue information in one large combined database called a union catalogue, which is discussed in greater detail in Section 4.3.

4.2.3 Networks and bibliographic utilities

It is necessary to distinguish between networks and bibliographic utilities.

4.2.3.1 Networks

The term network has been used to describe such a broad range of activities in the library and information environment that the meaning is no longer clear.

According to Markuson (1980: 4-5), the word network has been used to describe

- any type of co-operative activity between libraries
- formal and informal library consortia
- library users with common interests such as a network of research chemists
- all customers using the same library system
- conceptual systems of the future
- existing systems that link libraries with computer-controlled database access and message switching
- organisations that provide the systems described.

Although a formal definition of network implies a physical connection between the component parts, the above demonstrates that network has been used as an umbrella term for a broad range of co-operative activities.

The *ALA Glossary of Library and Information Science* (1983: 131) defines a library network as a:

> "specialised type of library cooperation for centralised development of cooperative programs and services ... requiring a central office and staff ..."

Studdiford (1989: 4) regarded this definition as far too structured, because it omitted informal, collegial and interpersonal networks.

Communication lines are identified as necessary for the formation of networks. *Harrod's Librarians' Glossary* ... (2000: 317) defines a network as:

> "a system of physically separate computers with telecommunication links, allowing resources to be shared ..."

Cawkell (1993: 217) also mentioned the role of telecommunications in the network environment. He described two separate types of networks, for example telecommunications and library networks. A telecommunication network is:

> "a general term used to describe the interconnection of devices (telephones, data terminals, exchanges) by telecommunications channels, e.g. public switched telephone network (PSTN), packet switched data network (PSDN), local area network (LAN), or wide area network (WAN)" (Cawkell 1993: 217).

According to Cawkell (Cawkell 1993: 217) a library network is:

> "a co-operative arrangement between several libraries, for example for borrowing or loaning books, or an electronic network within a library or interconnecting different libraries."

4.2.3.2 Bibliographic utilities

Saffady cited (in Anderson 1993: 50) described bibliographic utilities as:

> "the collective name for a group of computer service organisations that maintain large databases of cataloging records and offer various cataloging support services and related products to libraries and other customers who access those records on an online, timesharing basis."

The databases of bibliographic utilities and union catalogues share certain characteristics (Anderson 1993: 50):

- They are large.
- They contain bibliographic and authority records.
- They expand in different ways: records are purchased via subscription from outside vendors such as the Library of Congress and/or created online by the members.
- The item records reflect the holdings of the members.

Lynch (in Preece & Thompson 2001: 2) made an important distinction between a union catalogue and a bibliographic utility. Both represent shared cataloguing activities, but only a union catalogue has real time links to circulation information.

For the purpose of this study the definitions of Keenan and Johnston (2000: 21,175) are used to distinguish between networks and bibliographic utilities.

- **A network** is a group of physically dispersed computers linked to each other through communication lines to share information resources.
- **A bibliographic utility**, on the other hand, is an independent organisation that maintains online bibliographic databases, for example OCLC, RLIN, WLN in North America and Sabinet Online in South Africa. Union catalogues can be housed and administered as part of a bibliographic utility, but that does not mean that the utility can be called a union catalogue. Union catalogues are discussed in detail in Section 4.3.

4.3 UNION CATALOGUES

4.3.1 Introduction

The origin of the term “union catalogue” can be traced to the Greek noun “katalogos”, meaning a list, and the Latin “ūnio”, meaning unity or uniting (*Encyclopedia of Library and Information Science* 1981, s.v. union catalogs).

The origin of the term union catalogue is not certain, but by the beginning of the 20th century the term had already been applied to major projects such as the *Union Catalog of the Library of Congress*. The *Encyclopedia of Library and Information Science* (1981, s.v. union catalogs) investigated the terms used in the literature to describe the concept of combined catalogues.

Until 1920, one of the earliest terms used was **universal catalogue** in *Cannon’s Bibliography of Library Economy*. It implied a catalogue with a broad scope and extensive coverage of materials. The term **international catalogue** was frequently used as a synonym for universal catalogue.

In 1904, Richardson (in *Encyclopedia of Library and Information Science* 1981, s.v. union catalogs) used the terms **joint catalogue**, **co-operative catalogue**, or **interlibrary catalogue** interchangeably with **universal** and **international catalogue**.

The confusion of terminology became evident in an article entitled “Union Catalogs and Repertories, a Symposium” (in *Encyclopedia of Library and Information Science* 1981, s.v. union catalogs). **Union catalogue** was consistently used to refer to a single catalogue that listed the holdings of a central library and its branches, although an occasional reference was made to catalogues that contained the holdings of several independent libraries within a defined geographical area. The terms **repertory catalogue** and **joint card catalogue** were used repeatedly to denote an exchange catalogue or a limited union catalogue maintained by an individual library that contained cards from the local library as well as printed cards from the Library of Congress and the ALA Publishing Board.

In 1921, the subject heading “**Catalogs, Union**” appeared for the first time in *Library Literature*. It was used to indicate the central catalogue of a public or academic library system or a catalogue listing the holdings of more than one library *(Encyclopedia of Library and Information Science* 1981, s.v. union catalogs).

At meetings of the early ALA conferences, the term **union catalogue** was frequently used to refer to a central catalogue within a public library system. The term was later also applied to the co-operative effort which generated a single alphabetical bibliographic inventory of the holdings or partial holdings of more than one library. In the United States many considered the card format as being a characteristic of a union catalogue. However, this simply reflected the overemphasis of the card catalogue in libraries at that time and was an attempt to provide an arbitrary distinction between union catalogues and union lists.

To differentiate the union catalogue from other bibliographic devices its relationship to other terms needs to be considered. A **bibliography** is a list of material or documents dealing with the systematic identification, description and listing of recorded literature (Keenan & Johnston 2000: 21; *International Encyclopedia of Information and Library Science* 1997: 30). It is compiled to provide comprehensive coverage of a specific field and may be defined chronologically, geographically, by subject, by author or by format of publication. A **library catalogue** is essentially the bibliographic inventory of specific collections. A bibliography however, has universal coverage and authoritative purpose, with location as a possible optional feature to facilitate retrieval. In some respects a **union catalogue** of several libraries specialising in a specific subject area functions as a bibliography. However, the aim of a union catalogue is to include all the resources of the participating libraries, whilst a bibliography locates only items selected for inclusion

according to the purpose of the bibliography.

A bibliography emphasises systematic and comprehensive subject coverage and is not limited to the holdings of a particular library. A union catalogue is always cumulative in nature, whereas the cumulative nature of a bibliography is dependent upon its expressed purpose.

Another device used for the listing of materials is the **checklist**. A comprehensive list of books, periodicals and other materials containing the minimum description and annotations required to identify the works recorded (*Harrod's Librarians' Glossary* ... 2000: 140; *ALA Glossary of Library and Information Science* 1983: 41). In the United States a checklist is frequently used for special materials such as government publications, newspapers and older works.

A **union list**, according to the *ALA Glossary of Library and Information Science* (1983: 235) is:

> "a list of bibliographic items of a given type, in a given field, or on a particular subject, in the collections of a given group of libraries..."

The major difference between the union catalogue and the union list is that the union list is restricted to a single kind of publication or subject area. Merritt (in *Encyclopedia of Library and Information Science* 1981, s.v. union catalogs) pointed out that a union list is generally more limited in scope and usually printed, whilst the catalogue is not. Also, the catalogue is usually more current than a union list. Many European libraries do not distinguish between union lists and union catalogues (*Encyclopedia of Library and Information Science* 1981, s.v. union catalogs).

4.3.2 Union catalogues defined

The difficulties in defining and classifying union catalogues have been, and continue to be a problem.

In 1942, Merritt (in *Encyclopedia of Library and Information Science* 1981, s.v. union catalogs) emphasised format in his definition of a union catalogue:

> " ... a list, usually unpublished and usually on cards, limited or unlimited in scope, of the catalogued resources of two or more libraries. It is never completed or finished, but endeavours to reflect at any moment the actual holdings of its constituent libraries".

Willemin (1966: 6) did not mention format in her definition of a union catalogue:

> " ... an inventory common to several libraries and containing all or some of their publications listed in one or more orders of arrangement."

According to Goldstein (in *Encyclopedia of Library and Information Science* 1981, s.v. union catalogs) the difficulties in defining union catalogues are a result of the inherent complexities of the union catalogue in theory and practice, as well as human factors:

> "many contemporary discussions of, and plans or proposals for, the implementation of union catalogs in machine form continue to display minimal attention to larger issues of union catalog, machine form catalog, and library network theory and practice; that this is so due probably more to human frailties and operational constraints of actual library environments than it is to the substantive content of these fields."

A more recent definition in *Harrods' Librarians' Glossary* ... (2000: 748) reads:

> "a catalogue of stock in the various departments of a library, or of a number of libraries, indicating locations. It may be an author or a subject catalogue of all the books, or a selection of them, and may be limited by subject or type of material."

Keenan and Johnston's (2000: 246) definition is short, stating that a union catalogue "shows the items held by a number of libraries who may be members of a network or cooperative".

For the purpose of this study, the researcher defines a union catalogue as a current comprehensive compilation of catalogue entries with the primary function to indicate the resources of two or more libraries. It is also assumed that the catalogue is available online.

4.3.3 Functions of union catalogues

The functions of a union catalogue are varied and before such a catalogue can be established, its purpose has to be clearly defined to further bibliographical or library objectives, the latter being accessory to the former.

4.3.3.1 Bibliographical functions

The main function of the union catalogue is to locate publications and facilitate access to information. Coyle (2000: 2) referred to it as a document discovery tool.

Without a union catalogue, interlending would be time consuming. A lack of the ability to determine holdings would entail that requests be sent to various libraries that might have the item required (Delsey 2001: 48; Preece & Thompson 2001: 3; Dedrick 1998: 754).

Union catalogues allow better, faster and cheaper availability of bibliographic and authority records (Anderson 1993: 41), and are thus also useful tools in retrospective conversion programmes (Mowat 1996: 200; Avram 1988: 100; Arms 1973: 373).

4.3.3.2 Library functions

The library functions of union catalogues are the outcome of sound organisation and find their use in the compilation and utilisation of such catalogues. It is necessary to know how to exploit the union catalogue resources that were originally created for bibliographic purposes. To create a union catalogue

- catalogues of participating libraries have to be amalgamated
- standardised cataloguing rules have to be adopted.

In view of the high cost of publications, the co-ordination of acquisitions and collection development activities among libraries may be used as a lever to justify the cost of compiling union catalogues.

Technology has had a major impact on the creation of union catalogues. It is no longer necessary to create a union catalogue by sending records to a central point for assembly. Protocols for information retrieval allow seamless and transparent networked access to library resources, resulting in a virtual union catalogue as discussed below.

4.4 VIRTUAL UNION CATALOGUES

4.4.1 Introduction

The two modes for the delivery of union catalogues are the traditional union catalogue in which records from multiple sources are incorporated into a single database. This traditional model is being superseded by the virtual union catalogue, in which each catalogue remains a distinct entity but can be treated as a single resource by the end-user. A user interface offers integrated access to multiple catalogues as if these comprise a single catalogue (Dovey 2000: 1; Cousins 1999: 97). Such a catalogue is not maintained in a single location, but is created in real time and eliminates the need for record storage as well as the expense of loading and maintaining access to a central catalogue (Gould 1999: 117). A distributed virtual catalogue makes sense in an environment where each library has its own database and retrieval interface (Coyle 2000: 1).

Library professionals have long been active in creating “virtual collections”. The traditional approach to sharing resources by integrating bibliographic library records into union catalogues and indicating the holdings of each library, has been superseded by the virtual catalogue that provides a simultaneous seamless interface to the catalogues of several libraries.

The *Merriam-Webster’s Collegiate Dictionary* (2001, s.v. virtual) defines virtual as “ being such in essence or effect though not formally recognized or admitted”; *Wordsmyth* (2000, s.v. virtual) as “being or resulting in effect but not precisely in fact”; and *Cambridge Dictionaries Online* (2000, s.v. virtual) defines it as ”almost, even if not exactly or in every way”. From a computer science perspective, *Bartleby.com* (2000, s.v. virtual) defines virtual as “created, simulated or carried on by means of a computer or computer network”.

For the purpose of this study, a virtual union catalogue consists of different catalogues integrated across telecommunication networks, using a protocol to simulate a uniform

format, whereas a union catalogue exists in a single physical format.

Different protocols may be used to create virtual catalogues, for example ASCII, ODBC, Z39.50 (Gatenby 2002: 327; Hammer 2000: 54; Perez 1999: 76), but the focus in this study is on the use of the Z39.50 Search and Retrieve Standard (Breeding 2000: 60), because it is most commonly used.

4.4.2 Z39.50

4.4.2.1 Introduction

The Internet contains a vast amount of information on Z39.50. During March 2001, a basic search for the term produced 41 402 hits on Lycos, 55 092 on Alta Vista, and a daunting 1 645 290 hits on Exite. Searches on the South African search engines Mbendi, Ananzi and Sabtin were unsuccessful. One document could be retrieved from the Max search engine.

Z39.50 is the abbreviation for “Information Retrieval (Z39.50), Application Service Definition and Protocol Specification, ANSI/NISO Z39.50-1995". It is an information retrieval protocol that specifies the data structures and interchange rules to make it possible for a client machine to search databases on a server machine (*Harrod’s Librarians’ Glossary* ... 2000: 786-787; Hinnebusch 1998: 2; *What Is Z39.50?* 1998: 1; Lynch 1997: 2; Payette & Rieger 1997: 2; Dempsey, Russell & Kirriemuir 1996: 1; National Information Standards Organization 1995: vii).

Z39.50 is a software program protocol and not something that the user can see, or be aware of. The user interacts through a user interface and is protected from the different search engines or display differences. The transactions behind the scenes, facilitated by the Z39.50 protocol, provide a consistent view of a variety of databases through a single interface appearing as one system to users (D’Angelo 2001: 5; Moen 2001: 1; Breeding 2000: 60; Ward 2000: 14).

Russell (1997: 3) defines Z39.50 as:

> "a network protocol which specifies rules that allow searching of a range of different databases and retrieval of records, via one user interface".

The rather strange name Z39.50 comes from the two accredited standards development organisations that serve libraries, which once formed the Z39.50 Committee of ANSI. The two organisations are the National Information Standards Organization (NISO) and the American National Standards Institute (ANSI). NISO standards are numbered sequentially and Z39.50 is the fiftieth standard developed. The current version of Z39.50 was adopted in 1995, thus superseding the earlier versions of 1992 and 1988. It is sometimes referred to as Z39.50 Version 3 (Lynch 1997: 3; Dempsey, Russell & Kirriemuir 1996: 3; National Information Standards Organization 1995: vii).

The formal home of the standard is the Z39.50 Maintenance Agency at the Library of Congress in Washington, D.C. Continued development of the standard occurs within an informal group of implementers and developers known as the Z39.50 Implementers Group, or ZIG. The work of ZIG is communicated via a mailing list and through two or three annual meetings, open to all interested parties (Miller 1999: 1; Russell 1997: 6-7; National Information Standards Organization 1995: xi).

4.4.2.2 Z39.50 operations

It is not within the scope of this study to provide an extensive description of Z39.50. The aim is rather to highlight certain aspects of the standard to illustrate its central function in the existence of virtual union catalogues.

Z39.50 corresponds to the Client/Server model used in computing where the client is known as the Origin and the server as the Target (*Harrod's Librarians' Glossary* ... 2000: 786). Z39.50 is divided into eleven basic structural blocks, known as facilities. These facilities are: Initialisation, Search, Retrieval, Result-set-delete, Browse, Sort, Access control, Accounting/Resource control, Explain, Extended services, and Termination. Each facility is divided into one or more Services and each Service facilitates a particular type of operation between the Origin and the Target. Z39.50 applications select those services required to fulfil their function.

The working of the Z39.50 standard is detailed in *Z39.50, Part 2* (2001: 1-23). A

comprehensive description of the standard falls outside the scope of this study, but the basic working of Z39.50 as discussed in *Z39.50, Part 1* (2001: 1) is outlined in non-technical terms.

The typical search process in a Z39.50 session is as follows:

- OPAC user selects the target library (the Z-server) from the OPAC menu.
- OPAC user enters search terms, for example author, title, etc.
- OPAC software sends the search terms and the target library identification code to a Z-client, which is a piece of software usually running as part of the library system.
- Z-client translates the search terms into Z-speak and contacts the Target library's Z-server software.
- There is a preliminary negotiation between the Z-client and Z-server to establish the rules for the Z-Association between the two systems.
- Z-server translates the Z-speak into a search request for the Target library database and receives a response about numbers of matches, etc.
- Z-client receives the records.
- Records are presented to the user via the OPAC interface.

To simplify the above, initialisation can be seen as a greeting from the Origin ("Hello, do you speak English?") and a response from the Target ("Hello. Yes, I do. How may I help you?"). This positive two-way communication is a prerequisite for a successful session.

A search request is then transmitted from the Origin ("Can I have everything you've got about a person called Louis Pasteur?") and is responded to by the Target ("I've got 32 records matching your request and here are the first five. As you didn't specify anything else, I've sent them to you in unstructured text").

The Origin uses the Present service to ask for the data it needs ("Can I have the first ten, please. And please send them to me in MARC format"), resulting in the transmission of the records from the Target. Finally, the Origin uses the Termination facility to close the session ("Thank you, this is enough information") to which the Target responds by closing the session ("Goodbye").

Because the technology is hidden, the user sees it simply as searching a single large

database (Hogg & Field 2001: 1; Moen 2001: 3; Miller 1999: 7).

Three key points have turned a process originally designed to simplify matters for a user into a powerful force for changing all aspects of library activity (*Z39.50, Part 1* 2001: 2):

- Modern Z-clients are able to send requests to several libraries simultaneously, allowing tremendous time saving when searching for rare items or large numbers of records.
- The basic record format used for interchange is MARC (Stark 1997: 28). The Z-client is presented with a MARC record for display or possible further processing. In one way or another, all libraries use bibliographic and authority records. Z39.50 uses the same record, thus standardising the basic search and retrieval functions.
- Extended services for ordering documents, updating databases and storing searches can be defined and controlled via Z39.50. With Z39.50 as a basis, other library processes become accessible to participating libraries.

4.4.2.3 Possibilities of Z39.50

It is only when one understands the functioning of Z39.50 that its functions can be fully appreciated. The possibilities allowed by the Z39.50 standard are described in detail in *Z39.50, Part 2* (2001: 1-23) and the National Information Standards Organization (1995: 9-38). These possibilities are outlined below in non-technical terms.

(a) Search features

Z39.50 Version 3 allows the definition of powerful search statements (Gatenby 2002: 328; Moen 2001: 6; *Z39.50 Part 1* 2001: 2; Lynch 1997: 3-4):

- Complete Boolean statements involving the standard operators AND, OR, NOT etc.
- Comparison operators for dates, for example “greater than”, “equal to”.
- Proximity searching.
- Truncation.
- Completeness, for example part of field or complete field.

(b) Additional features

Z39.50 is not just helpful in searching. It also enables (Lynch 1997: 3-4):

- Authentication, allowing the Z-server to control access to all databases (Iddings 2001: 8).
- Accounting/resource control, allowing fee-based access.
- "Explain" facility, allowing information about the remote database services to be transmitted to the Z-client.
- Index browsing, typically available in OPAC systems.
- Defining record formats, for example MARC format.

(c) Extended services

Version 3 also defines how to use the standard to implement "Extended services". Although not defined in the standard, Z39.50 is used as a control method. The following tasks within the extended services area have been defined (Iddings 2001: 8; *Z39.50 Part 1* 2001: 3; Lynch 1997: 3):

- Save a result set for later use.
- Save a query for later use.
- Define a periodic search schedule.
- Request an item.
- Update a database.
- Create an export specification.

4.4.2.4 Z39.50 implications for libraries

The implications of Z39.50 for library and information services are profound. Some possible effects on library operations are:

(a) OPACs

OPACs have been Z39.50 compatible for a number of years. Z39.50 benefits library users by allowing retrieval of information from more than one catalogue through a single search (Hogg & Field 2001: 2; Ward 2000: 12).

(b) Union catalogues

Over decades, union catalogues have proved to be a valuable tool for individual libraries that wish to co-operate. However, union catalogues are difficult and expensive to manage. Even with automated systems, co-ordination and maintenance might be a daunting organisational and technical task.

By using Z39.50 enabled catalogues and OPACs, a "virtual" union catalogue can be assembled without any changes to the methods and procedures of an individual library (Breeding 2000: 61; Ward 2000: 13). A user at a personal computer may simultaneously search several catalogues, perceived as one catalogue. Useful material and location can be displayed with no additional assistance from library staff. *Ad hoc* groupings of libraries can be assembled to suit user needs (*Z39.50 Part 1* 2001: 3; Evans 2000: 52; Gould 1999: 120; Perez 1999: 76). This is called clumping (Hogg & Field 2001: 1; Ridley 1999: 1).

A clump can be defined as two or more autonomous networked information retrieval systems to

- encourage wider access
- foster collaborative collection management (Dunsire 2001: 332; *Clumps* 1999: 1).

In a physical clump, records from several catalogues are collected in union catalogues (*eLIB Phase 3 Programme* 1997: 6). Virtual clumps use Z39.50 to create a distributed union catalogue where the records are not physically brought together (*MODELS 3* 1998: 2; Dempsey & Russell 1997: 243-244).

A search in the *Harrod's Librarians' Glossary* ... (2000:) would guide the user from the term union catalogue to the term clump. A clump is defined by *Harrod's Librarians' Glossary* ... (2000: 157) as:

> "an aggregation of catalogues, a term introduced in the UK at the 3rd MODELS Workshop. The clump may be 'physical' - in traditional terminology a union catalogue - or it may be 'virtual', being created at the time of searching..."

In this study, the more traditional term "union catalogue" is used.

The term clump is often used interchangeably with the term “scope”. Scope is defined as the “area in which something acts or operates or has power of control” (*Ultra Lingua* 2000, s.v. scope); or the “breadth or range of one’s view, thought, operation, or the like” (*Wordsmyth* 2000, s.v. scope); and as the “range of a subject covered by a book, programme, discussion, class, etc.” (*Cambridge Dictionaries Online* 2000, s.v. scope). *Merriam-Webster’s Collegiate Dictionary* (2001, s.v. scope) defines scope as “applicable to an area of activity, predetermined and limited”.

Scope refers to the process of limiting a search on a database or group of databases. For example, catalogues of several libraries can be searched together as a clump, and the scope of the search can be defined by the user, for example to printed material.

The difference between a clump and a scope is that a clump is a group of databases that can be searched together, whilst a scope allows the user to make certain choices within a database.

(c) Record sourcing

Searching for and downloading of bibliographic and authority records using Z39.50 is highly effective. Multiple sources may be searched simultaneously and bibliographic or authority records be compared with ease, allowing selection of the most complete record. This kind of cross searching highlights the differences in cataloguing standards between libraries. It is important that cataloguers are aware that the quality of data received will differ (Brack *et al*. 2000: 3).

The Z39.50 environment allows users to establish relationships with a variety of sources even if different software is used.

(d) Interlending

Because users are able to immediately identify the location of required items, the immediate benefit of a virtual union catalogue is that interlending becomes easier (Breeding 2000: 61). Z39.50 extended services systems allow arranging for delivery, account verification and billing of an item to the enquirer (Preece & Thompson 2001: 3).

In a Z39.50 enabled interlending future, libraries will be able to search and order items in

a single operation and interact directly via their own library OPAC search facility with whichever library best serves their needs (Stokes & Wilber 2001: 45).

(e) CD-ROM access

Despite the steady migration of CD-ROM information providers to web-based services, CD-ROM networks will remain a feature of library services for some time. Because these databases still use different software interfaces they have to be searched separately.

Z39.50 would make it possible to search one or more databases via a single familiar interface. Uniform hardware would not be a requirement and UNIX workstations, Macintosh or even dumb terminals could be used (*Z39.50 Part 1* 2001: 4).

(f) Selective dissemination of information

Version 3 of Z39.50 allows the user to specify search statements to be saved and run at specified intervals. The user can identify useful library and information resources and set up selective dissemination of information (SDI) profiles using a single interface. Searches will be done automatically and the results downloaded from the database to a specified destination (*Z39.50 Part 1* 2001: 4).

(g) Commercial information databases

Library catalogues comprise only a fraction of available searchable information. Hundreds of commercial information service providers like Dialog, SilverPlatter, EBSCO, etc. allow complex search statements. Z39.50 contains equivalent search statements such as proximity searching, item highlighting, image retrieval and specification of variant forms for downloading (for example Word, Word Perfect). Accounting and authorisation controls are also incorporated (*Z39.50 Part 1* 2001: 4).

The use of Z39.50 protocols can eliminate the complexities surrounding searching on disparate databases.

(h) Internet searching and filtering

The frustrations of Internet searching provided the main impetus for the development of Z39.50. Adding an optional Z39.50 interface to search engines prevents much of the aggravation and time wasted when using many different search engines and user interfaces. The extended search facilities of Z39.50 allow the filtering of unwanted areas of Internet content. Each library is able to set its own filter parameters for accessing major search engines (*Z39.50 Part 1* 2001: 4).

(i) Database updates

Z39.50 is not only a search and retrieval tool; updating a database could be used as an extended service. For example, a Z-client may retrieve an authority record from a database and, after editing, return it to update the original database (*Z39.50 Part 1* 2001: 4).

Unfortunately Z39.50 still has some problems.

4.4.2.5 Problems with Z39.50

Some of the problems associated with Z39.50 indicate why Z39.50 has not yet been more widely used to create virtual union catalogues. The problems include (Hogg & Field 2001: 2):

- Different interpretations or implementations of the standard. The standard has many options that may or may not be implemented. Therefore, a Z39.50 client who supports browsing cannot browse a Z39.50 server that does not allow browsing.
- Different bibliographic standards. This includes the variations of MARC (MARC21, USMARC, UNIMARC, etc.), the use of local fields within institutions, and variations on the storing and displaying of diacritic character sets (Dunsire 2001: 336).
- A lack of facilities to search a specific type of material, for example Shakespeare's *Hamlet* as a book, or videocassette of a performance, or critical discussion of the play.
- A lack of field definitions: all fields are transmitted with a display (present) request. The Z39.50 user has to determine the display fields and labels but remains unaware of local fields and their purpose in each catalogue.
- No facilities for displaying the holdings of a catalogue. For example it is impossible to tell the number of copies that a library holds and whether they are on loan or in

a reference collection.
- Z39.50 cannot improve the search ability of resources.

Most of these problems are associated with bibliographic records and do not affect authority files. Potential solutions to these problems are:

- MARC harmonisation. USMARC and CANMARC have already converged into MARC21 and there is a possibility that the British Library would also move towards MARC21 (Hogg & Field 2001: 2; Byrum 2000: 116). A single set of MARC fields would assist in overcoming the confusion regarding the use and meaning of MARC tags.
- The continual development of Z39.50 would enhance the possibilities of the standard.
- Implementing MARC holdings information into the standard would enable the display of real-time holdings in any catalogue.

4.4.2.6 Criteria for a virtual union catalogue

The following has to be considered to ensure a successful virtual union catalogue:

(a) Database consistency and search accuracy

To be feasible, a virtual union catalogue requires a uniform set of indexes and search functions in the databases of participating libraries (Coyle 2000: 11). This entails the creation of compatible local catalogues designed to support the distributed environment as the first step in creating a virtual union catalogue.

(b) System availability

A virtual union catalogue serves a large group of libraries and it is imperative that the catalogue is available at all times and that downtime is minimal. Local system downtime, whether scheduled or unscheduled, has an impact on the availability of the catalogue to local and outside users (Preece & Thompson 2001: 3; Coyle 2000: 12).

(c) Capacity planning and the network

The development of a virtual union catalogue would have implications on the local system search capacity and network load. All the contributing catalogues could potentially receive any search that is directed to one catalogue only. Network capacity planning would be required to accommodate the increased traffic to and from the library (Coyle 2000: 12).

(d) Response time

The Internet telecommunication capabilities that allow virtual catalogues, may also pose the major problem - poor Internet response time could cause the failure of the virtual union catalogue.

Internet lines, routers and local area networks could all contribute to delays, even if the target catalogue is fast. Internet connection and response may take long, or a target catalogue may be slow to respond. All such delays result in a slow response time that may seem an eternity to the end-user (Perez 1999: 79).

(e) Sorting, merging and duplicate removal

A search in a traditional union catalogue retrieves a set of records that have been merged to eliminate duplicate bibliographic and authority records. Records have been sorted prior to input into the catalogue. A search on a virtual catalogue returns a set of records that are not merged or sorted. Version 3 of the Z39.50 protocol includes a sort function (Preece & Thompson 2001: 3; Coyle 2000: 12; Ward 2000: 15; Gould 1999: 118). Even with the sort function, the union catalogue interface would have to merge the retrieved sets as well as remove duplicate information while maintaining data from individual libraries.

4.5 SUMMARY

Libraries have always shared information. Union catalogues arose from a need to establish the location of a particular document. In this Chapter various definitions for union catalogues and the terms used in the history and development of union catalogues were reviewed and the functions of union catalogues were discussed.

With the advent of computers, most catalogues were converted to electronic format, which enhanced search ability. As library systems software became more sophisticated it allowed users at their own workstations to search and download records from other

libraries through Internet access (Grillo 1999: 56). It proved necessary to define computer terms that became part of library terminology, for example, fields, records, files and databases. A distinction was also made between networks and bibliographic utilities.

The advent of the Internet allowed the possibility to link seamlessly to different databases simultaneously by means of protocols such as Z39.50. This marked the beginning of virtual union catalogues and the end of physical union catalogues. Virtual catalogues are defined as different catalogues integrated by Z39.50 to simulate one catalogue.

The working and possibilities of Z39.50 were discussed in non-technical terms. The Chapter ended with the implications of Z39.50 for libraries and the criteria for a successful virtual union catalogue.

Virtual union catalogues go some way towards the goal of effective authority control, because authority records created by one library, are available to other libraries within the consortium. For virtual authority files to be totally acceptable, problems reported such as different interpretations or implementation of the standard and slow response time need to be eliminated.

The process of authority control in an academic library consortium with a union catalogue is illustrated in Figure 1. One aspect that is not addressed by using a union catalogue is libraries without the staff and expertise to create authority records. This is a major problem in South Africa, because to be able to create authority records on a bibliographic utility, the library must be a NACO participant (described in Paragraph 3.8.6) and adhere to certain standards. A body who can co-ordinate authority control within a consortium is necessary. A literature study did not reveal information on such a body and it would have to be developed. But, before this problem can be addressed, it is necessary to determine the cost to create a new authority record.

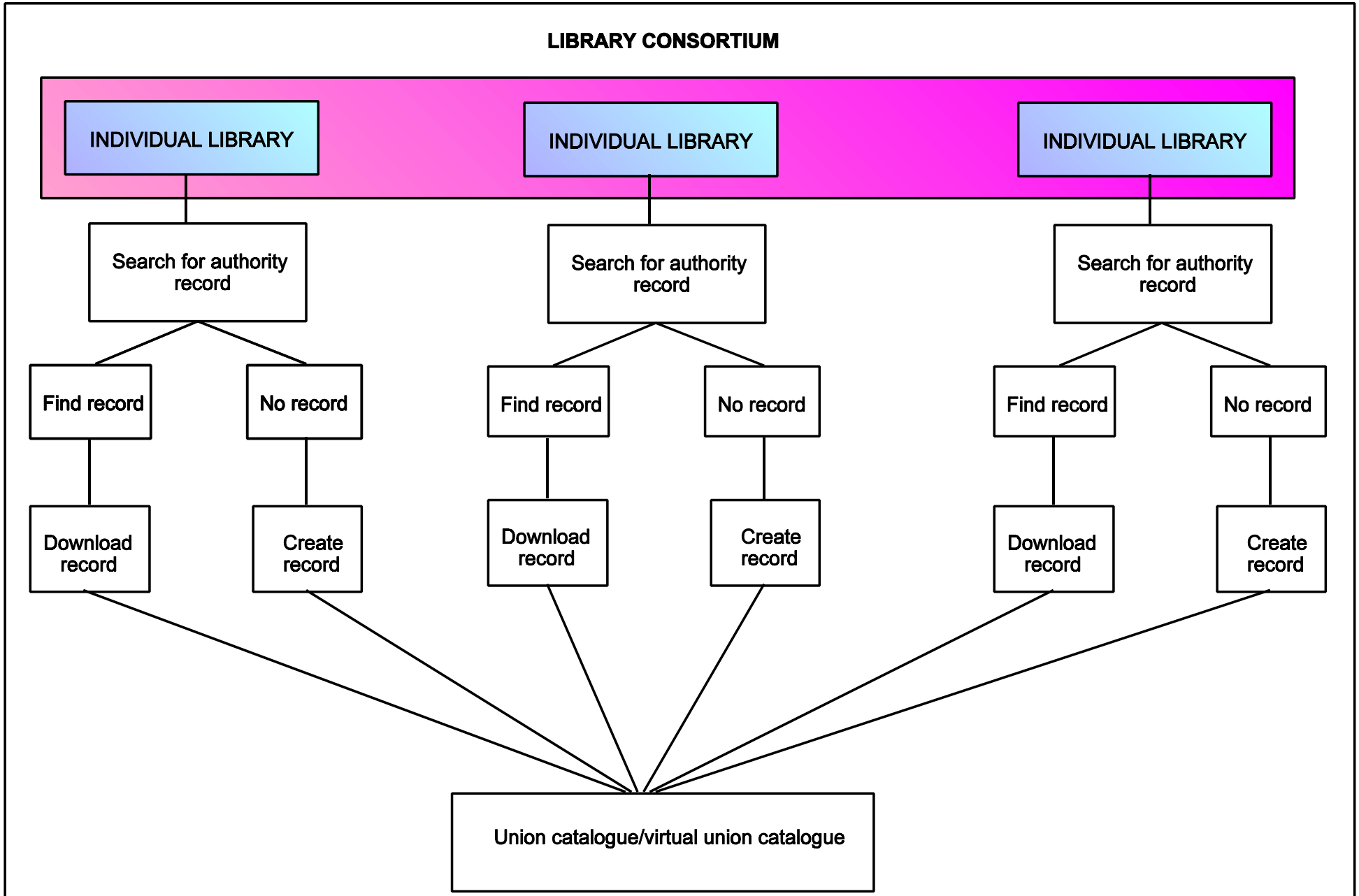


Figure 1: The process of authority control within an academic library consortium with a union catalogue

CHAPTER 5

UNIT COST CALCULATION

5.1 INTRODUCTION

The process of calculating the cost of a service or a product is known as costing. Knowing the cost of a product or service enables management to calculate and determine prices to ensure profits and to keep product and service costs within the budget. All enterprises, from vehicle factories to service institutions, benefit from costing. Costing provides decision-makers with a tool for policy formulation and organisational planning, and provides a financial basis for decision-making (Barfield, Raiborn & Kinney 2001: 5).

Brown *et al.* (1996: 2) viewed costing as the science that ensures relevant decision-making information being made available to management. Costing is nothing new; and has even been mentioned in the Bible, in *Luke* 14:28:

> "And indeed, which of you here, intending to build a tower, would not first sit down and work out the cost to see if he had enough to complete it?"

The purpose of this Chapter is to determine the cost of creating and changing authority records in academic libraries in South Africa. The use of a virtual union catalogue ensures that records can be downloaded by all the member libraries. If they need an authority record, and it is not created yet, there must be an avenue through which they can create the record, or ask another library to create the record for them.

Calculations done in this chapter are used in the design of a Central Office for Authority Control as detailed in Chapter Seven. An attempt is made in this chapter to determine the actual cost of creating or changing an authority record in a South African academic library.

A discussion of the terminology associated with costing is followed by an overview of unit costing. The section on the unit cost calculation for authority records in South African academic libraries provides a background to authority control in South Africa and highlights certain aspects that precipitated this study. The methodology and procedures of the study are explained. The average costs of the following are calculated:

- create authority records on OCLC
- create authority records on in-house library systems
- change authority records on OCLC
- change authority records on in-house library systems.

To enable the calculation of the unit cost of authority records, the time to create or change various authority records had to be determined. As part of this study, the following average times were calculated - the time required to

- create authority records on OCLC
- create authority records on in-house library systems
- change authority records on OCLC
- change authority records on in-house library systems.

The differences between authority records for personal names and corporate bodies are examined in the time study and references in authority records submitted during the study period are discussed.

After summarising the findings, results of the South African study are compared with results of other studies, including the cost study of NACO participation at Indiana University.

5.2 CATEGORISATION OF COSTS

5.2.1 Types of cost studies

Roberts (1998: 164-166) identified five different types of cost studies; forming a hierarchy of increasing complexity and diversity of application:

- **Cost analysis** is the basic model of study that provides information for the other descriptive and analytical cost study methods. Cost analysis requires the measurement of resources input to the system, an understanding of the nature and type of work carried out, and knowledge of the use of time by workers. Data from cost analysis can be fed into accounting, estimating, budgeting and performance measurement procedures.

- **Cost distribution** (also called cost allocation) concerns resource allocation, flow of resources and activities. Cost distribution is a useful descriptive procedure providing a general view of the costs carried in various parts of the organisation. Analysis allows
  - an understanding of the outcome of previous resource allocation and financial decisions
  - adjustment throughout the estimating and budgeting process.
- **Unit costing and timing** use cost analysis data with measures of output to provide cost/time indications that could also be used as performance measures. Unit costing and timing is the method used in this study.
- **Cost-effectiveness studies** are applied in performance appraisal, planning and decision-making. Cost of existing processes and model cost data for alternative options are required and obtained through cost analyses or cost estimation. Cost-effectiveness studies are systems oriented to determine the best performance according to specific effectiveness and cost criteria.
- **Cost-benefit studies** are seldom undertaken in the provision of library and information services. However, the appropriateness of cost-benefit analyses for the appraisal of major investments is obvious. Cost-benefit studies utilise cost data from the other cost study types mentioned above.

5.2.2 Unit costing and timing

Prentice defined cost as a monetary measurement of the resources used for a particular purpose (Prentice 1996: 60-61). It is the value of the sacrifice made to acquire goods or services (Barfield, Raiborn & Kinney 2001: G-3; Brown *et al*. 1996: 4). Unit cost is the resources used to produce one unit for a particular purpose, for example, the cost to circulate a book, to answer a reference question, or to create an authority record (Prentice 1996: 60).

One way of quantifying operations is to carry out cost study calculations on a specific task (McCain & Shorten 2002: 23). The unit cost allows comparison of the annual production cost of a unit in a single library or various libraries. Cost studies, for example, can determine whether a specific activity is increasing in cost, or if one library is able to complete a task more economically than another. It is also possible to draw comparisons to determine the least cost at which an activity may be undertaken. However, a cost study fails to capture any information about effectiveness.

Cost studies cannot determine whether the current operational procedures are suited to the volume of work to be done. The cost of creating authority records, for example, can be calculated without taking into account the current or projected number of records that still need to be created (McCain & Shorten 2002: 23).

Cost studies are expensive in terms of time spent on resources (McCain & Shorten 2002: 23). Two generally accepted output measures, that of unit costing, and the time required for completing a task are important to the librarian in charge of Technical Services. The only requirement according to Roberts (1985: 38) is that each activity has to be "unitary" in nature, which means that it should be operationally evident and capable of unambiguous definition.

Roberts (1985: 38) viewed the creation of, or change to authority records as "unitary" and therefore having the possibility to provide unit cost and unit time data for these processes.

It is relevant to evaluate cost studies as described in library and information science literature.

5.3 COST STUDIES DISCUSSED IN THE LITERATURE

Literature on cost studies was surveyed and cost studies at Indiana University and Ohio State University, and the study of Snyman are discussed.

5.3.1 Literature review

The literature on cost studies for technical operations is extensive as evident from the bibliographies of Tavenner (1988) and Dougherty and Leonard (1970). However, much of the literature is limited in scope and lacking in detail. Authors mainly estimated in-house costs compared with prices of vendor-supplied services, or offered models for cost-benefit analysis. Lancaster (1977: 265) identified problems in the cost studies literature:

> "...while several ... appear to be very thorough and complete, cost analyses of this type generally have two basic limitations: (a) although many data are presented, it is not always clear how these data were derived, and it is thus impossible for a second investigator to duplicate the methodology to obtain truly

> comparable data for a second institution or group of institutions, and (b) directly related to the first point, there are no generally accepted standards for what should be measured in these cost studies and for how the costs should be derived and presented".

This statement is still relevant with regard to some of the latest publications. During the past twenty years, much attention was focussed on the costs of technical services operations in academic libraries. Kantor (1986) indicated that more than a hundred academic libraries were involved in cost studies between 1981 and 1984. An analysis of the 1982-1983 ARL statistics indicated that libraries with the lowest processing cost ranked highest in the number of volumes catalogued per year. The opposite was also true; libraries with the highest processing costs catalogued the fewest volumes.

This significant correlation between low cost and high productivity gives credence to the value of cost studies. Bedford (1989) agreed with this statement and added that managers should continually obtain and analyse cost information to redesign workflow effectively and to reallocate resources and personnel.

In their comparative cost study of three medium-sized research libraries, Getz and Phelps (1984) found dramatic variations in the technical services organisation and workflow of their small sample. They suggested research of a large group of libraries to enable the comparison of cost characteristics with other characteristics of libraries.

Resources and examples are available to assist librarians in conducting cost studies at their institutions. In 1991, the Association for Library Collections and Technical Services prepared a guide, outlining steps when calculating unit costs of acquisitions and cataloguing activities. Articles on the results of cost studies often contained methods for obtaining, analysing and interpreting cost data. For example, Morris (1992) provided a detailed description of a longitudinal study, investigating the impact of automation on cataloguing costs at Iowa State University. Similarly, Osmus and Morris (1992) investigated the serials and monographs cataloguing sections at Iowa State University and concluded that it costs less to catalogue a monograph than a serial.

In an extensive report, Jenda (1992) presented a workflow analysis and time/cost study to support a decision of the University of Botswana to continue the library subscription to Library of Congress catalogue cards. He measured the time required for cataloguing tasks

in an experimental setting.

During 1996, two articles on cost studies in library acquisitions were published. Rebarcak and Morris (1996) published a description of the longitudinal study and a methodology for investigating staff costs for book acquisitions, and Morris, Rebarcak and Rowley (1996) subsequently investigated the impact of automation on acquisitions staff costs. They found that the cost of acquiring a monograph remained high compared to its cataloguing cost. Unlike the automation of cataloguing tasks, the automation of monograph acquisitions was slow to develop.

In 1982-1983 and 1997-1998, other studies on the acquisitions function were conducted at the University of Oregon. In reporting the latest findings, Slight-Gibney (1999) stated that she would like other libraries to conduct studies to provide data for comparison and enable best practices or benchmarks to be developed.

El-Sherbini (1995) included a brief cost analysis of in-house work as part of an evaluation of the outsourcing of cataloguing Slavic material at Ohio State University. Rider and Hamilton (1996) reported on tests of the OCLC PromptCat service at Michigan State and Ohio State universities, with a cost/benefit analysis based on estimates of staff time and costs.

In a recent article, Morris *et al.* (2000) reported that between 1990-1991 and 1997-1998 the average cost of cataloguing a title at Iowa State University had declined from $20.83 to $16.25 per title. They credit much of this saving to the increasing availability and quality of shared catalogue and authority records via bibliographic utilities.

Very few cost studies were undertaken on authority control only. In 1986, the Library of Congress researched the costs of NACO participation to member libraries. The cost per created record ranged from $3.15 to almost $63, while the average cost was $14.67 (Dickson & Zadner 1989: 58). Eighty percent of the libraries that responded reported a cost of $20.00 or less. On the other hand, a number of libraries cited the costs of creating non-NACO authority records at $7.30 per record on average, which is about half the cost of the average NACO record (Dickson & Zadner 1989: 58).

Three studies on the cost and time involved in authority control are discussed below.

5.3.2 Cost analysis at Indiana University

5.3.2.1 Introduction

In 1993, Byrd and Sorury published one of the cost analysis studies quoted most often, and one of a few concentrating solely on authority control. They stated that all users of national utilities had reaped tremendous benefits (Byrd & Sorury 1993: 108) such as

- high quality records being available on a timely basis
- duplication of effort being reduced
- standardisation of cataloguing being promoted.

National bibliographic utilities are important when sharing cataloguing resources and are prestigious to the institutions involved. However, an institution may enter one or more of these programmes without having an accurate sense of the additional cost and time involved in full participation. Byrd and Sorury (1993: 108) investigated the additional time and financial commitments required for participation in NACO by analysing the labour required for the creation of 200 typical NACO authority records. The average cost of NACO record creation was separated into components, helping to pinpoint areas for consideration in the design of a cost-effective workflow.

5.3.2.2 Background

The Indiana University Libraries Cataloging Department in Bloomington, Indiana is a participant in NACO and the PCC, and carries out Enhance and Upgrade cataloguing on OCLC. The library has continued its commitment to all the programmes, but the level of involvement has not remained static. The NACO project was the only project in which the library's commitment had increased since initial participation. Indiana University has consistently been one of the top three contributors to NACO (Byrd & Sorury 1993: 110).

5.3.2.3 Methodology

The four people involved in Indiana's workflow were two cataloguers, the principal cataloguer and a student terminal operator. Each cataloguer kept track of the time it took to create 100 name authority records on their local system. These records included personal, corporate and conference names, as well as series and uniform titles.

The student terminal operator kept track of the time spent on each aspect of her work with these records. This included the time it took to input the records into OCLC, to edit and contribute these after revision by the principal cataloguer, and to replace the record on the local system with the OCLC record.

The principal cataloguer kept track of the time required for these records. His work involved revision of the records after input, routine correspondence with the Library of Congress, and consultation with the two cataloguers.

5.3.2.4 Findings

The average time for complete processing of one record was 12.93 minutes. This period was broken down into five areas:

- the cataloguer's work (including research, setting up the authority record and keying in the information)
- input into the LSP system
- the work of the principal cataloguer
- the contribution to LC's authority file
- downloading the record into the catalogue of Indiana University.

The time spent is tabulated in Figure 2.

Function	Minutes	Percentage
Create	5.61	43.36 %
Input	3.77	29.13 %
Review	1.79	13.86 %
Edit	1.1	8.49 %
Replace	0.66	5.13 %
TOTAL	**12.93**	**99.97 %***

*Rounding causes the total to be less than 100%

Figure 2: Percentage of time per NACO function (Byrd & Sorury 1993: 116)

The cataloguers used 5.61 minutes or 43.36% of the total time. Keying in the record was the second most time consuming task and took 3.77 minutes, or 29.13% of the total time. The principal cataloguer, who had been cataloguing for approximately twenty years was responsible for reviewing the completed record, and spent an average of 1.79 minutes or 13.86% of the 12.93 minutes on each record. Contributing the record to LC's file took the

second least time, averaging 1.1 minute per record, or 8.49% of the total time. If required, records were then corrected. The replacement of the local record with the record from OCLC accounted for the smallest portion of time. This final task took an average of 0.66 minutes or 5.13% of the total time (Byrd & Sorury 1993: 114-115).

The findings are tabulated in Figure 3.

Function	Minutes	Cost per Minute	Average cost per Record	% of Cost
Create	5.61	$ 0.22	$ 1.25	51.52 %
Input	3.77	$ 0.08	$ 0.30	12.41 %
Review	1.79	$ 0.41	$ 0.73	30.26 %
Edit	1.10	$ 0.08	$ 0.09	3.62 %
Replace	.66	$ 0.08	$ 0.05	2.19 %
TOTAL	**12.93**	**$ 0.87**	**$ 2.42**	**100%**

Figure 3: Time and cost per NACO function (Byrd & Sorury 1993: 117)

For purposes of the cost study above, only salary was considered (Byrd & Sorury 1993: 116). The cost per minute for the original cataloguers' input amounted to $0.22. When this cost was multiplied by the average time per record of 5.61 minutes, the average cost per record for the first portion of the work was $1.25. The cost per minute for inputting came to $0.08. When multiplied by the minutes per record, the cost per record amounted to $0.30. The work of the principal cataloguer cost $0.41 per minute and, with the average time to review the records (1.79 minutes), the average cost came to $0.73 per record. The final editing and contribution of the records cost $0.08 per minute, and with an average time of 1.1 minute per record to add the record to the LC file, the average cost per record amounted to $0.09. The replacement cost of the records came to $0.08 per minute. The average time of replacing a record was 0.66 minutes, and the average cost amounted to $0.05 (Byrd & Sorury 1993: 116-117).

5.3.3 Cost analysis at Ohio State University

During a visit to the Ohio State University in 1996, the researcher discussed their cost analysis results with the cataloguing staff. Ohio State University is not an active NACO member, but considers authority control as very important.

An analysis of authority control procedures at Ohio State University indicated that the

minimum time to create an authority record came to 37 minutes and the maximum time to 176 minutes (Marais 1996: 6).

The average times taken per task are described below (Marais 1996: 6):

Tasks	Time
Review a heading	2 minutes
Retrieve books, if necessary	5 - 20 minutes
Research the heading in:	
• Library of Congress files	1 - 10 minutes
• NUC, if pre-1956	5 - 10 minutes
• Other sources	10 - 60 minutes
Create an authority record	
• Establish and create	10 minutes
• Review for revision	2 - 20 minutes
• Correct bibliographic records and inform consortium	5 -15 minutes

Figure 4: Time to create an authority record at Ohio State University

Ohio State University preferred not to calculate the average time to create an authority record, but indicated that it took between 37 and 176 minutes. In the South African study, it was determined that the records for a personal author took between 4 and 70 minutes, and for corporate bodies between 11 and 75 minutes. No information is available on the processes of Ohio State University, and it would therefore be unwise to make any further comparisons.

5.3.4 Cost analysis of Snyman and the National Library of South Africa

In her study on authority control of South African names, Snyman (1999: 134-136) used statistics obtained from the National Library of South Africa in Pretoria to determine the time and cost to examine ("kontroleer") and change the record.

The process used by Snyman (1999: 135) to determine the average time for examining and changing one authority record is described below.

Tasks	Time
Average number of authority records changed per month	400
Average working hours per day	8
Accepted industrial average	75%
Productive hours per day	8 x .75 = 6
Average working days per month	22
Authority records changed per hour	400 ÷ (22x6) = 3
Time per record	**20 minutes**

Figure 5: Time required to change an authority record according to Snyman

To repeat, this calculation did not reflect the time to create a new authority record, but only indicated the time taken for the examination of the record and making corrections (Snyman 1999: 135).

Compared to the average of 13 minutes for changing a record (Paragraph 5.5.3.3) according to the South African study, it took 20 minutes to examine the record and carry out the corrections according to Snyman.

Snyman (1999: 135) used the following formula to determine the cost of examining and changing an authority record:

Average number of authority records each month	400
Average salary per year	R50 000.00
Overhead costs	90%
(R50 000 x 1.9 ÷ (12 x 400) = R20.00 per authority record	

Figure 6: Cost to change an authority record according to Snyman

The rest of this Chapter focuses on the Unit Cost Study undertaken in South Africa during April and May 2002.

5.4 UNIT COST CALCULATION FOR AUTHORITY RECORDS IN SOUTH AFRICA

5.4.1 Background

As mentioned in Section 3.9.3, authority control in South Africa developed slowly, leaving South African academic libraries with a backlog of authority work. Most libraries have problems regarding large numbers of headings without authority records, different forms

of a name, spelling errors, etc.

After Sabinet Online had started using the Innopac library system in 2000, records could only be added via OCLC. The aim was to ensure that only records of a high quality were loaded onto the SaCat database. Sabinet Online, with the backing of the Sabinet Online Standards Committee, were adamant not to repeat the mistakes of the past jeopardising the quality of the SaCat database (Rabe 2002). This decision did not pose any problems regarding bibliographic records, but had a major influence on the subsequent development of authority control in South Africa. The prohibition on adding bibliographic and authority records created in-house to the SaCat database forced libraries to rethink authority control policies and practices.

The WorldCat database on OCLC provides access to a large number of high quality authority records and the cost of obtaining and downloading these records is included in the annual subscription fees (Rabe 2002).

Although the WorldCat authority file contains readily available authority records for American, Canadian and British authors, much more limited coverage is given to South African, African, Dutch, French, German and Australian authors. The OCLC authority file is a closed file, and only NACO participants may create or change records. South African libraries were thus faced with two options. To

- create authority records not available on OCLC via in-house library systems, or to
- become NACO participants and create authority records on OCLC.

Massive duplication of effort and cost to consortium libraries made the creation of authority records via in-house library systems an unviable solution and three consortia thus opted for NACO participation.

From 24 to 28 July 2000, a trainer from the Library of Congress trained the first South African librarians in NACO policies and procedures in Pretoria. The trainees were from the University of South Africa, Rand Afrikaans University, University of the Witwatersrand, Medunsa, Vista University in Pretoria, Technikon Southern Africa, Vaal Triangle Technikon and Technikon Witwatersrand. Representatives from Frelico and the National Library of South Africa (Pretoria) joined the group from GAELIC. Members of the CALICO libraries were trained in Cape Town the following week. The training equipped trainees to create

authority records for personal names, uniform titles and corporate bodies on the OCLC database. No training was given on creating series authority records.

The question that will be answered in this study is: how can academic library consortia do authority control as effectively and speedily as possible through a central structure? The focus of this Chapter is on the creation of new authority records and the cost and time involved in changing existing authority records. Such information is not currently available in South Africa, and was therefore collected through the study below. The results of the cost study will be used during the development of a Central Office for Authority Control in Chapter Seven.

5.4.1.1 Participants

During March 2002, the researcher contacted all the South African consortia mentioned in Section 1.3 (all university and technikon libraries in South Africa form part of consortia) and asked permission to involve their members in the study, as well as requesting contact details of their members involved in authority control. The management of the Seals and Esal consortia immediately indicated that they were not in a position to participate in the study, because cataloguers are involved in the implementation of a new library system.

The other consortia managers recommended twenty-three libraries. Data Collection Sheets were sent to these libraries and were completed and returned by:

- University of South Africa
- Rand Afrikaans University
- University of the Witwatersrand
- University of Pretoria
- Technikon Southern Africa
- University of Cape Town
- University of Stellenbosch

Eleven libraries indicated that they are just downloading authority records from bibliographic utilities. Five libraries did not respond at all.

Even though the study was primarily focussed on authority control in academic library consortia, the National Library of South Africa in Pretoria, being the national bibliographic

agency, was also invited to participate in the study because of their importance as expressed In Section 3.9. The invitation was accepted, but the library was unable to provide any information when contacted after the closing date (31 May 2002).

5.4.1.2 Data collection

During April 2002, the Unit Cost Calculation Instructions (Appendix A) and the Unit Cost Calculations Data Collection Sheet (Appendix B) were faxed or sent via e-mail to contact persons. Fourteen cataloguers took part and each was requested to record the following:

- salary information
- annual leave
- working hours.

For each authority record created or changed, the cataloguer was asked to indicate the following:

- Did the cataloguer **create** or **change the record**?
- On which library system did the cataloguer work: **in-house system**, **OCLC**, or the **consortium union catalogue**?
- Was the authority record for a **personal name**, **corporate body**, a **series**, **uniform title**, or a **subject heading**?

Incomplete information regarding these aspects was received. For example, no information on cataloguing on a consortium union catalogue, and only a few records for series and uniform titles were returned.

The cataloguer was requested to record the time for completion of the various tasks associated with the process of creating or changing **each** authority record, as well as completing a Unit Cost Calculations Data Collection Sheet.

The time study technique determines the time required to carry out an activity as accurately as possible (Roberts 1985: 58). When participants self-report, there is always potential for error. However, observation creates an artificial work environment that may not reflect normal practises and procedures. Statisticians rarely recommend correcting for measurement error, because there is no way of knowing the error, and any corrections

may introduce additional errors (Morris *et al.* 2000: 71; Price 1974: 50).

Roberts (1998: 199-200) identified six steps in carrying out a time study:

- Obtain and record all the available information about the task, the person performing it, and any elements in the environment likely to impact on the execution of the task. Different institutions participated, making it difficult to include this step in this study. Participants could state problems such as slow system response time, etc. in the Comments Section on the Data Collection Sheet.
- Record a complete description of the method, and break down the task into elements. Because the library system used to create or change the record influences the method, a description of each element within every task was given on the Instruction Sheet to ensure that all project participants break down the process into the same tasks.
- Measure and record the time taken by the cataloguer to perform each element of the task. The participants were asked to measure the time they spent on each task and not to use an average time.
- Assess the effective working speed of the person relative to the predetermined "normal" speed. Due to a lack of information on South African circumstances, a predetermined normal speed could not be determined. However, it is hoped that this study would provide valuable information that could be used as a basis for planning, budgeting, etc.
- Determine the allowances to be made over and above the normal time for the task. For example, some of the participants reported slow response times because of network problems in their institutions.
- Determine the "allowed time" for the task.

In a time study, the process (for example creating an authority record) is broken down into tasks and elements; the latter being a distinct part of a task selected for convenience of timing (Roberts 1998: 200). A detailed breakdown into tasks is necessary (Roberts 1998: 200) to:

- ensure a distinction between effective time (or productive work) and ineffective time (or unproductive activity)
- permit a more accurate assessment of the rate of performance than would be the case if an entire task or activity were assessed

- enable the isolation of elements involving a high fatigue component and allocating rest allowances more accurately
- enable time standards to be checked so that the later omission or insertion of elements may be detected quickly
- enable a detailed job specification
- enable the establishment of standard time values for frequently recurring elements.

The process of creating or changing an authority record was divided into three tasks to ensure that all the participants break down and time the same elements. A description of each element within each task was provided on the Instruction Sheet. For the purpose of this study, the activity of creating or changing of authority records was divided into:

Research, which involves:

- retrieving works by an author to search for different forms of the name, pseudonyms, name changes, etc.
- identification of all the different forms or variants of the name
- searches on databases and other library catalogues to determine commonly used names and to search for other authors using the same name
- consultation of reference sources to resolve conflict, if required
- a preliminary decision on the authoritative form.

Creating/changing the authority record, which includes the following elements:

- confirming the establishment of the authoritative form of the name by using it as the 1XX in the authority record
- making 4XX references from the unused form(s) of the name
- making 5XX references to link related headings with each other
- completing the authority record as required by local policies
- carrying out quality control on the record; save/store the record in the database
- downloading the record into the in-house system if the record has been retrieved from a union catalogue or a bibliographic utility.

Housekeeping describes clerical and clean up activities, for example:

- inserting the new heading in bibliographic records(s) if required
- checking and removing duplicate forms in the relevant index
- maintenance, or reporting errors in the consortium union catalogue or bibliographic utility
- keeping statistics.

5.4.2 Methodology used for unit cost calculations

As mentioned previously, unit costs are the costs involved in providing a specific service or product (for example an authority record). Unit costs could be applied in general planning, budgeting and for comparison with organisations providing similar services. Reviews of the accounting and costing activities of educational and research institutions, including libraries, have indicated that no real use of accounting has been made to determine the price of services and actual costs (Prentice 1996: 15).

Specific costs relating to any stage in the sequence of library processes were obtained by converting labour time into monetary value, using salary rates (Snyder & Davenport 1997: 58; Roberts 1985: 52). The cost of time was determined by calculating the annual salaries of the people associated with a specific task, pro rata to the total time spent on the task (Turock & Pedolsky 1992: 109). To obtain a more accurate and precise unit cost, it was necessary to add overhead expenses such as material costs, electricity, computer costs, etc. Roberts defined overhead costs (also called indirect costs) (1985: 136-137) as:

> " ... the sum of all business costs which cannot be traced to specific units of output, or are not traced, because it is too costly or inconvenient to do so."

Because it is not traced, or readily available in most institutions, overhead costs were not taken into account in this study. Therefore, the costs identified for the creation or change of an authority record in the study can be called **labour or employee costs**, rather than true unit costs.

To derive the labour costs of creating or changing authority records, Vinson (1990: 71-72) (see Figure 6) provided a formula used to calculate each participant's cost per productive

hour.

Most of the academic institutions regarded salary information and conditions of service as confidential. Therefore, institutions are not identified, but the results are presented in descending order of the number of Unit Cost Calculations Data Collection Sheets received.

Steps in cost calculating	**Example**
ANNUAL COST TO INSTITUTION	
Annual salary	R 97 456
Pension contribution	R 9 309
Medical contribution	R 10 000
TOTAL	**R 116 765**
TOTAL PRODUCTIVE HOURS	
Total possible working days in 2002 in SA (52 weeks x 5 days)	260
Public holidays in 2002 in SA	9
Annual leave	32
Sick leave (average for all participants)	10
Subtotal	**51**
TOTAL WORKING DAYS	209
Hours in work day	8.00
Less lunch times	.30
Total hours	**x7.30**
TOTAL PRODUCTIVE HOURS (Multiply total hours by total days)	1526
COST PER PRODUCTIVE HOUR (Divide annual cost to institution by total productive hours)	R 76.60
COST PER PRODUCTIVE MINUTE (Divide cost per productive hour by 60 (1 hour = 60 minutes)	R 1.28

Figure 7: Calculating cost per productive hour for South African study based on Vinson (1990: 72)

The salaries of the cataloguers who participated in this study ranged from R87 386 to R164 788. The total working hours a day, excluding lunch times, ranged from 5 to 7. 5 hours, and the annual leave ranged from 19 to 42 days. For the purpose of this study, allowance was made for nine public holidays falling on weekdays in South Africa during 2002, and an average of ten days sick leave.

The formula in Figure 7 was used to determine the cost per minute for each of the fourteen

cataloguers participating in the project, as tabulated below in Figure 8.

	Cataloguer	Cost per minute
Institution 1	1	R 1.83
	2	R 1.51
	3	R 1.55
Institution 2	1-5	R 1.26*
Institution 3	1	R 1.62
	2	R 1.75
Institution 4	1	R 1.22
Institution 5	Contract worker	Per record created: R 37.50
Institution 6	1	R 1.38
Institution 7	1	R 1.05

* This institution supplied an average salary for their participants.

Figure 8: Cost per minute for participating institutions

Institution 5 employed a qualified and experienced cataloguer to create authority records on a contract basis and paid R37.50 per record. This price is not considered in the calculation of the average cost of authority records. However, information from Institution 5 is used in the time study.

FINDING

The cost per minute for cataloguers participating in the study ranged from R 1.05 to R 1.83

Distortion of the outcome if one institution was more productive than another, or if salaries varied a great deal from institution to institution (Shillinglaw 1982: 418-419) resulted in the decision not to calculate an average cost per minute for the participating cataloguers. When using raw data supplied by the participating libraries to calculate their costs, the data reflects the costs of persons actually paid. To obtain more accurate results, costs are thus based on actual salaries plus benefits and not on an average.

The next step was to calculate the cost of each authority record created or changed. This was achieved by calculating the cataloguer's cost per minute. For example: Cataloguer 1 from Institution 1 submitted 641 records which took between 4 minutes to 65 minutes to complete. At a cost of R1.83 per minute, the total cost to the institution was R17 383.92 for 641 records - an average cost of R27.12 per authority record. This procedure was followed for each cataloguer, according to the records submitted.

The rest of Chapter five focuses on the results of the unit cost and unit time studies done

in South Africa during 2002.

5.5 RESULTS OF THE UNIT COST CALCULATION STUDY IN SOUTH AFRICA

5.5.1 Cost calculation for the creation of authority records

To enable comparison of the cost of records created on bibliographic utilities, such as OCLC, with the cost of those created on in-house library systems, a decision was taken to calculate the cost of records created on different library systems separately.

5.5.1.1 Cost to create authority records on OCLC

Two institutions with cataloguers on different salary scales participated in the study. The average cost to create authority records on OCLC for each institution was calculated. The results of the cost to create an authority record on OCLC in Institution 1 showed in Figure 9.

	Cost per Minute	Personal Name Records	Corporate Body Records	Total Cost	Average Cost
Cataloguer 1	R 1.83	540	101	R 17 383.92	R 27.12
Cataloguer 2	R 1.51	53	-	R 1 490.36	R 28.12
Cataloguer 3	R 1.55	69	-	R 3 350.64	R 48.56
TOTAL	**-**	**662**	**101**	**R 22 224.92**	**R 29.12**

Figure 9: Cost to create an authority record on OCLC - Institution 1

FINDING

R22 224.92 ÷ 763 records = R 29.12 - the average cost to create an authority record in Institution 1

The process outlined in Figure 9 was also applied to Institution 3, the second institution with cataloguers on different salary scales and incorporated into Figure 10.

The average cost to create an authority record on OCLC of all the participating institutions are tabulated in Figure 9. Institution 2 did not create authority records on OCLC.

	Personal Name Records	Corporate Name Records	Total Cost	Average Cost
Institution 1	662	101	R 22 224.92	R 29.12
Institution 3	43	10	R 1 446.55	R 27.29
Institution 4	26	14	R 282.61	R 7.06
Institution 5	27	-	R 1 012.50	R 37.50
Institution 6	18	1	R 1 248.90	R 65.73
Institution 7	-	7	R 117.60	R 16.80
TOTAL	**776**	**133**	**R 26 333.08**	

Figure 10: Cost to create an authority record on OCLC

FINDING

The average cost to create an authority record on OCLC ranged from R7.06 to R65.73

The average cost of R7.06 of Institution 4 was the only unit cost less than R10.00. This institution indicated that they did not carry out any research but used only the information available from the material in hand to create an authority record. The time study indicated that their average time to complete an authority record was about 5 minutes, which explains the low average cost per authority record.

FINDING

R26 333.08 ÷ 909 records = R29.00 - the average cost of creating an authority record on OCLC

5.5.1.2 Cost to create authority records on an in-house library system

Only two libraries indicated that they created authority records on their in-house library systems. Both were NACO participants, but Institution 2 only submitted Unit Cost Calculations Data Collection Sheets for records created on their in-house system. Institution 3 submitted Unit Cost Calculations Data Collection Sheets for both OCLC and records created on their in-house system. The results are tabulated in Figure 11.

	Personal Name Records	Corporate Name Records	Series Records	Subject Headings	Uniform Title	Total Costs	Average Costs
Institution 2	41	13	10	9	2	R 260.25	R 3.47
Institution 3	4	3	7	-	2	R 368.26	R 23.01
TOTAL	**45**	**16**	**17**	**9**	**4**	**R 628.51**	

Figure 11: Cost to create an authority record on an in-house library system

FINDING

R 628.51 ÷ 91 records = R6.91 - the average cost of creating an authority record on an in-house library system

No statistically valid results concerning the cost of creating authority records on an in-house library system should be assumed. Since only two institutions supplied data, the sample is much smaller than that of the records created on OCLC. However, it seems to be more expensive to create an authority record on OCLC than on an in-house system. The average cost on OCLC amounted to R29.00 compared to the average of R6.91 per record on an in-house library system.

Institution 3 was the only institution to supply information both for records created on OCLC and on their in-house library system. Their average cost to create an authority record amounted to R27.29 on OCLC, and R23.01 on their in-house system. The difference is not significant enough to indicate that less time was spent on records created on their in-house system. The significant difference between the costs of Institution 2 (R3.47 per authority record) and Institution 3 (R23.01 per record) indicated that Institution 2 spent much less time on the creation of authority records.

5.5.2 Cost calculation to change an authority record

To enable a comparison, the cost of records changed on different library systems were calculated separately. The cost of changing authority records on bibliographic utilities, such as OCLC, were compared with the cost of changes on in-house library systems.

5.5.2.1 Cost to change authority records on OCLC

To enable the calculation of a unit cost for the change of authority records on OCLC, the average cost of changing a record for each institution had to be calculated. The same procedure used in the calculation of the creation of authority records, as summarised in Figure 8, was applied and the results are tabulated in Figure 12.

	Personal Name Records	Corporate Name Records	Total Cost	Average Cost
Institution 1	180	-	R 3 655.02	R 20.31
Institution 3	1	-	R 13.44	R 13.44
Institution 6	1	1	R 124.20	R 62.10
Institution 7	-	12	R 218.64	R 18.22
TOTAL	**182**	**13**	**R 4 011.30**	

Figure 12: Cost to change an authority record on OCLC

FINDING

The average cost to change an authority record on OCLC ranged from R13.44 to R62.10

Four institutions indicated that they changed authority records on OCLC at a total cost of R4 011.30.

FINDING

R4 011.30 ÷ 195 records = R20.57 - the average cost for changing an authority record on OCLC

5.5.2.2 Cost to change authority records on an in-house system

Only one institution indicated that they changed authority records on their in-house system.

	Personal Name Records	Corporate Name Records	Series Records	Subject Headings	Total Costs	Average Costs
Institution 2	22	3	6	5	R 123.48	R 3.43
TOTAL	**22**	**3**	**6**	**5**	**R 123.48**	**R 3.43**

Figure 13: Cost to change an authority record on an in-house library system

FINDING
R123.48 ÷ 36 records = R3.43 - the average cost for changing an authority record on an in-house library system

The cost to change an authority record on OCLC seems to be much higher than on an in-house library system (as is the case when creating authority records). The average cost to change a record on OCLC amounted to R20.57 compared to R3.43 on an in-house library system.

Since only one institution supplied data and the sample is smaller than that of the records changed on OCLC, no statistically valid results could be assumed about the cost of changing authority records on an in-house library system.

5.5.3 The time required to create/change an authority record

The time required to complete a task is the classic basis for allocating cost in a manufacturing environment where labour provides the greatest amount of added value to the final product. Labour also constitutes the greater portion of service cost in service industries.

Therefore, the length of time required to create or change an authority record, divided into the three tasks of research, creating/changing the record, and housekeeping, was determined.

5.5.3.1 The time to create an authority record on OCLC

Participants were requested to indicate the amount of time they spent on each task, and to time each record separately, rather than using an average. To determine average times for each cataloguer and institution, the researcher calculated the time spent on each record and the total for each cataloguer. The results are tabulated in Figure 14.

	Records	Research (Minutes)	Creating Record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 1	763	7 100	5 678	2 043	14 821	19.4 min
Institution 3	53	404	311	117	832	15.7 min
Institution 4	40	0	162	40	202	5.1 min
Institution 5	27	452	144	112	708	26.2 min
Institution 6	19	445	265	195	905	47.6 min
Institution 7	7	31	45	36	112	16.0 min
TOTAL	**909**	**8 432**	**6 605**	**2 543**	**17 580**	

Figure 14: Time required to create an authority record on OCLC

FINDING

The average time to create an authority record on OCLC ranged from 5.1 to 47.6 minutes

As in 5.5.1.1, the average time of 5.1 minutes of Institution 4 was the only time shorter than 10 minutes. On the Data Collection Sheet - Comments Section, participants commented that they did not undertake any research and used only the information from the material in hand to create an authority record. The time study indicated that their average time to complete an authority record was approximately 5 minutes, giving a low average cost per authority record.

FINDING

17 580 minutes ÷ 909 authority records = 19.4 minutes - the average time to create an authority record on OCLC

It is also possible to calculate the average time for each of the three tasks within the process of creating authority records.

FINDING

Research: 8 432 minutes ÷ 909 records = 9.3 minutes per authority record

Creating the record: 6 605 minutes ÷ 909 records = 7.3 minutes per authority record

Housekeeping: 2 543 minutes ÷ 909 records = 2.8 minutes per authority record

From the above, it is clear that research is the most time consuming element (48% of the total time) of authority control. The cataloguer has to search for different forms of names,

consult cataloguing standards and reference sources to establish authoritative headings, and construct appropriate references. Most of the intellectual activity takes place during this stage.

Creating the authority record is the second largest element (37.6% of the total time) of authority control. The cataloguer creates the record, using the heading established during the research process. At this stage quality control is vital to ensure that the correct form of the name is used as heading and that all the relevant references and notes are included. If the record is obtained from OCLC, it is downloaded onto the in-house library system.

Housekeeping concludes the process (about 14.4% of the total time), and includes important clerical elements, such as database maintenance, managing statistics, etc.

The average time and cost for each of the three tasks within the process of authority control are tabulated in Figure 15.

Function	Average Minutes	Percentage	Average Cost
Research	9.3	48 %	R 15.83
Creating record	7.3	37.6%	R 12.39
Housekeeping	2.8	14.4%	R 4.74
TOTAL	**19.4**	**100%**	**R 32.96**

Figure 15: The average time, percentage and average cost to create an authority record on OCLC

5.5.3.2 The time required to create an authority record on an in-house library system

Two institutions, both NACO participants, indicated that they created authority records on their in-house library systems. Institution 2 submitted only Unit Cost Calculations Data Collection Sheets for records created in-house. Institution 3 submitted Unit Cost Calculations Data Collection Sheets for both OCLC and records created on their in-house system.

	Records	Research (Minutes)	Creating Record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 2	75	59	114	26	119	2.7 min
Institution 3	16	96	74	47	217	13.6 min
TOTAL	**91**	**155**	**188**	**73**	**416**	

Figure 16: The time to create an authority record on an in-house library system

FINDING
416 minutes ÷ 91 authority records = 4.6 minutes - the average time to create an authority record on an in-house library system

Only Institution 3 supplied information for records created on both OCLC and their in-house library system. The average time to create an authority record was 15.6 minutes on OCLC, and 13.6 minutes on the in-house system. The difference is not really significant. However, the very significant difference between the time of Institution 2 (2.6 minutes per authority record) and Institution 3 (13.5 minutes per record) indicates that Institution 2 spent much less time on the creation of authority records.

The calculation of the average time for each of the three tasks within the process of creating authority records on an in-house library system is indicated below.

FINDING
Research: 155 minutes ÷ 91 records = 1.7 minutes per authority record
Creating the record: 188 minutes ÷ 91 records = 2.1 minutes per authority record
Housekeeping: 73 minutes ÷ 91 records = 0.8 minutes per authority record

Research took an average of 1.7 minutes, or 36.9% of the total time to complete an authority record on an in-house library system. On OCLC, this task absorbed 48% of the total time. A possible reason could be that cataloguers using in-house systems use local policies and procedures and do not have to cater for users in other libraries or other countries.

Creating the authority record entails creating the record using the authoritative form and including all references and notes. On in-house library systems this activity took an average of 2.1 minutes, or 45.6% of the total time, whilst the average on OCLC was 7.3

minutes, or 37.6% of the total time.

Housekeeping required 17.4% of the total time, or an average of 0.8 minutes. This process took two minutes longer for records created on OCLC. A possible reason could be that international practices and procedures were not taken into account and that local policies are preferred when authority records are created on in-house library systems, resulting in fewer changes and corrections to bibliographic records.

The average time for each of the three tasks within the process of authority control on an in-house library system, and their costing are tabulated in Figure 17.

Function	Average Minutes	Percentage	Average Cost
Research	1.7	36.9%	R 2.55
Creating record	2.1	45.6%	R 3.15
Housekeeping	0.8	17.4%	R 1.20
TOTAL	**4.6**	**99.9%***	**R 6.90**

* Rounding causes total to be less than 100%

Figure 17: The average time, percentage and average cost to create an authority record on an in-house library system

5.5.3.3 The time required to change an authority record on OCLC

Four institutions indicated that they changed authority records on OCLC.

	Records	Research (Minutes)	Change Records (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 1	180	930	788	522	2 240	12.4 min
Institution 3	1	5	2	1	8	8.0 min
Institution 6	2	40	30	20	90	45.0 min
Institution 7	12	65	67	76	208	17.3 min
TOTAL	**195**	**1 040**	**887**	**619**	**2 546**	

Figure 18: The time to change an authority record on OCLC

FINDING

The time to change an authority record on OCLC ranged from 8 to 45 minutes

As was the case when creating an authority record (Paragraph 5.5.3.1), the time taken by Institution 3 is much less than that of the other institutions. This is a result of their policy not to do research and using only the information available from the material in hand.

FINDING

2 546 minutes ÷ 195 authority records = 13 minutes - the average time to change an authority record on OCLC

The average times for each of the three tasks within the process of changing the authority record on OCLC have been calculated below.

FINDING

Research: 1 040 minutes ÷ 195 records = 5.3 minutes per authority record

Changing the record: 887 minutes ÷ 195 records = 4.5 minutes per authority record

Housekeeping: 619 minutes ÷ 195 records = 3.2 minutes per authority record

Research proved to be the most time-consuming activity whether creating or changing an authority record on OCLC. Changing a record, research took an average of 5.3 minutes or 40.8% of the total time, and creating an authority record, research took 9.3 minutes or 48%.

The process of changing the record took an average of 4.5 minutes or 34.6% of the total time, compared to 7.3 minutes or 37% to create a new record.

Housekeeping took 24.6% of the total time when a record is changed, or 3.2 minutes on average, compared to 14% of the average time (or 2.8 minutes) when a new record is created.

The average time to change an authority record on OCLC is tabulated in Figure 19.

Function	Average Minutes	Percentage	Average Cost
Research	5.3	40.8%	R 8.39
Create record	4.5	34.6%	R 7.12
Housekeeping	3.2	24.6%	R 5.06
TOTAL	**13**	**100%**	**R20.57**

Figure 19: The average time, percentage and average cost to change an authority record on OCLC

5.5.3.4 The time required to change an authority record on an in-house library system

Only one institution indicated that they changed authority records on their in-house library system. Information for 36 changed records was submitted.

	Records	Research (Minutes)	Creating Record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 2	36	28	50.5	22.5	101	3 min
TOTAL	**36**	**28**	**50.5**	**22.5**	**101**	

Figure 20: Time to change authority records on an in-house library system

FINDING

101 minutes ÷ 36 authority records = 3 minutes - the average time to change an authority record on an in-house system

Since only one institution supplied data and the sample is much smaller than that of the records changed on OCLC, no valid statistical results may be assumed about the cost of changing authority records on an in-house library system. However, it was noted that it took an average of 13 minutes to change an authority record on OCLC at a cost of R20.57, compared to 3 minutes at a cost of R3.43 on an in-house system.

Calculations of the average time for each of the three tasks within the process of changing an authority record are provided below.

FINDING

Research: 28 minutes ÷ 36 records = 0.8 minutes per authority record

Changing the record: 50.5 minutes ÷ 36 records = 1.5 minutes per authority record

Housekeeping: 22.5 minutes ÷ 36 records = 0.7 minutes per authority record

When an authority record was changed on an in-house library system, the first task, research, took an average of 0.8 minutes, or 26.6% of the total time. The second task, changing the record, took 50% of the total time, or 1.5 minutes. The last task, Housekeeping took an average of 0.7 minutes, or 23.3% of the total time.

Function	Average Minutes	Percentage	Average Cost
Research	0.8	26.6%	R 0.92
Creating record	1.5	50%	R 1.71
Housekeeping	0.7	23.3%	R 0.80
TOTAL	**3.0**	**99.9%***	**R 3.43**

* Rounding causes the total to be less than 100%

Figure 21: The average time, percentage and average cost to change an authority record on an in-house library system

When changing a record on OCLC, research took an average of 5.3 minutes (40.8% of the total time), changing the record took 4.5 minutes (34.6% of the time), and housekeeping took 3.2 minutes or 24.6% of the total time.

The majority of the time was spent on the process of changing the record (50%) on an in-house system, while on OCLC most of the time was spent on research (40.8%).

A comparison of the differences between personal author authority records and corporate body authority records follows.

5.5.4 Personal author versus corporate body authority records

Most of the authority records required in academic libraries are for personal names and corporate bodies. These constitute the majority of headings in library catalogues. Fewer headings are required for uniform titles, series and subjects. Libraries using Library of Congress subject headings can only use records made available by LC.

Only a few records for uniform titles and series were submitted for the Cost Study in South Africa during 2002. Unfortunately, these were insufficient for a meaningful comparison of the differences in cost and time between the different types of records. However, sufficient data for the creation and change of authority records of personal names and corporate bodies allowed a comparison of these two types of records.

5.5.4.1 The time required to create personal name authority records on OCLC

Five institutions submitted 776 personal name authority records.

	Records	Research (Minutes)	Creating Record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 1	662	6 007	4 940	1 895	12 842	19.3 min
Institution 3	43	248	239	49	536	12.4 min
Institution 4	26	0	90	26	116	4.4 min
Institution 5	27	452	144	112	708	26.2 min
Institution 6	18	400	245	185	830	46.1 min
TOTAL	**776**	**7 107**	**5 658**	**2 267**	**15 032**	

Figure 22. Time required for creating personal name authority records on OCLC

FINDING

15 032 minutes ÷ 776 authority records = 19.3 minutes - the average time for creating an authority record for a personal name on OCLC

The average time for each of the three tasks required in the process of creating a record for a personal name was calculated.

FINDING

Research: 7 107 minutes ÷ 776 records = 9.1 minutes per authority record

Changing the record: 5 658 minutes ÷ 776 records = 7.3 minutes per authority record

Housekeeping: 2 267 minutes ÷ 776 records = 2.9 minutes per authority record

The average time spent on research for a personal name authority record was 9.1 minutes, or 47.1% of the total time. Creating the record took an average of 7.3 minutes, or 37.8% of the total time, and housekeeping took 2.9 minutes, or 15% of the total time.

The average time and percentage of the total time for each of the three tasks when creating authority records for personal authors on OCLC are tabulated in Figure 23.

Function	Average Minutes	Percentage
Research	9.1	47.1 %
Creating record	7.3	37.8 %
Housekeeping	2.9	15%
TOTAL	**19.3**	**99.9%***

* Rounding causes the total to be less than 100%

Figure 23: The time and percentage to create personal name authority records on OCLC

It took four minutes to create the shortest record of a personal name submitted during the project in South Africa. The statistics for the record are:

Research: 1 minute
Creating the record: 2 minutes
Housekeeping: 1 minute
References: 0

It took 70 minutes to create the longest record for a personal name. The statistics for the record are:

Research: 39 minutes
Creating the record: 30 minutes
Housekeeping: 11 minutes
References: 2

FINDING
Authority records for personal names submitted during the project ranged from 4 to 70 minutes with an average time of 19.3 minutes

5.5.4.2 The time required to create corporate body authority records on OCLC

Five institutions submitted a total of 133 authority records for corporate bodies.

	Records	Research (Minutes)	Creating Record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 1	101	1 093	738	148	1 979	19.5 min
Institution 3	10	156	72	68	296	29.6 min
Institution 4	14	0	72	14	86	6.1 min
Institution 6	1	45	20	10	75	75.0 min
Institution 7	7	31	45	36	112	16.0 min
TOTAL	**133**	**1 325**	**947**	**276**	**2 548**	

Figure 24: The time required to create corporate body authority records on OCLC

FINDING

2 548 minutes ÷ 133 authority records = 19.1 minutes - the average time to create an authority record for a corporate body on OCLC

For each of the three tasks in the process of creating a record for a corporate body the average times are calculated below.

FINDING

Research: 1 325 minutes ÷ 133 records = 9.9 minutes per authority record

Changing the record: 947 minutes ÷ 133 records = 7.1 minutes per authority record

Housekeeping: 276 minutes ÷ 133 records = 2.1 minutes per authority record

The average for research for a corporate body authority record was 9.9 minutes (51.8% of the total time). Creating the record took an average of 7.1 minutes (37.1% of the total time), and housekeeping required 2.1 minutes (10.9% of the total time).

The average time and percentage of the total time for each of the three tasks for creating authority records for corporate bodies on OCLC are tabulated in Figure 25.

Function	Average Minutes	Percentage

Research	9.9	51.8%
Creating record	7.1	37.1%
Housekeeping	2.1	10.9%
TOTAL	**19.1**	**99.8%***

* Rounding causes the total to be less than 100%

Figure 25: The time and percentage to create corporate body authority records on OCLC

The shortest record created for a corporate body took eleven minutes. The statistics are:

Research: 4 minutes
Creating the record: 5 minutes
Housekeeping: 2 minutes
References: 0

The longest record created for a corporate body took 75 minutes. The statistics are:

Research: 45 minutes
Creating the record: 20 minutes
Housekeeping: 10 minutes
References: 1

FINDING
Authority records for corporate bodies submitted during the project ranged from 4 to 75 minutes, with an average time of 19.1 minutes

No great difference emerged between the times required to create an authority record for a personal name compared to that of a corporate body. A personal name record took an average of 19.3 minutes compared to 19.1 minutes for a corporate body.

Comparing the different tasks indicates that research for the record of a corporate body comprised 51.8% of the time, whilst it took 47.1% of the total time for a personal name. No great difference in the process of creating the two types of records could be detected. Creating the record took 37.8% of the total time for personal names, and 37.1% for corporate bodies. Personal name authority records required more housekeeping - 15% of the total time compared to 10.9% for corporate bodies.

The finding that there was no significant difference between the time required to create an

authority record for a personal name and the time required for a corporate body was somewhat unexpected. One would have expected work on corporate body records to be more time consuming because more research is required to trace name changes. Although there is a difference in the time required for research (51.8% for corporate bodies vs 47.1% for personal names), this difference is cancelled by the difference in time spent on housekeeping. Housekeeping took 15% of the total time for a personal name record, and only 10.9% of the time for a corporate body. Two possible explanations may be suggested:

- Personal names comprise the largest part of any authority file. Therefore the possibility of different forms of the headings in the catalogue for one author is greater, entailing more housekeeping.
- This finding, however could be misleading, because far more records were received for personal names than for corporate names.

5.5.4.3 The time required to change personal name authority records on OCLC

Three institutions changed 182 authority records for personal names.

	Records	Research (Minutes)	Creating record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution average
Institution 1	180	930	788	522	2 240	12.4 min
Institution 3	1	5	2	1	8	8 min
Institution 6	1	25	10	10	45	45 min
TOTAL	**182**	**960**	**800**	**533**	**2 293**	

Figure 26: The time to change personal name authority records on OCLC

FINDING

2 293 minutes ÷ 182 authority records = 12.6 minutes - the average time to change an authority record for a personal name on OCLC

A calculation of the average time for each of the three tasks in the process of changing a record for a personal name is provided below.

FINDING

Research: 960 minutes ÷ 182 records = 5.3 minutes per authority record

Changing the record: 800 minutes ÷ 182 records = 4.4 minutes per authority record

Housekeeping: 533 minutes ÷ 182 records = 2.9 minutes per authority record

The average time required for research to change an authority record for a personal name took 5.3 minutes (42% of the total time). The actual changing of the record took an average of 4.4 minutes (34.8% of the total time), while housekeeping took 2.9 minutes (23.2% of the total time).

The average time and percentage of the total time of each of the three tasks of changing an authority record for personal authors on OCLC are tabulated in Figure 27.

Function	Average minute	Percentage
Research	5.3	42.0%
Creating record	4.4	34.8%
Housekeeping	2.9	23.2%
TOTAL	**12.6**	**100 %**

Figure 27: The time and percentage to change personal name authority records on OCLC

The shortest record changed for a personal name took four minutes. The statistics for the record are:

Research: 1 minute
Creating the record: 2 minutes
Housekeeping: 1 minute
References: 1

The longest record changed for a personal name took 45 minutes. The statistics for the record are:

Research: 25 minutes
Creating the record: 10 minutes
Housekeeping: 10 minutes
References: 2

FINDING

The time to change authority records for the personal names submitted during the project ranged from 4 minutes to 45 minutes, with an average time of 12.6 minutes

5.5.4.4 The time required to change corporate body authority records on OCLC

Two institutions changed thirteen authority records for corporate bodies on OCLC.

	Records	Research (Minutes)	Creating Record (Minutes)	House-keeping (Minutes)	Total (Minutes)	Institution Average
Institution 6	1	15	20	10	45	45.0 min
Institution 7	12	65	67	76	208	17.3 min
TOTAL	**13**	**80**	**87**	**86**	**253**	

Figure 28: The time to change corporate body authority records on OCLC

FINDING

253 minutes ÷ 13 authority records = 19.5 minutes - the average time to change an authority record for a corporate body on OCLC

The calculation of the average time required for each of the three tasks within the process of changing a record for a corporate body is given below.

FINDING

Research: 80 minutes ÷ 13 records = 6.2 minutes per authority record

Changing the record: 87 minutes ÷ 13 records = 6.7 minutes per authority record

Housekeeping: 86 minutes ÷ 13 records = 6.6 minutes per authority record

The average time required for research to change an authority record for a corporate body was 6.2 minutes (31.7% of the total time). The actual changing of the record took an average of 6.7 minutes (34.3% of the total time) whilst housekeeping took up 6.6 minutes (33.8% of the total time).

The average time and percentage to change authority records for corporate bodies on OCLC are tabulated in Figure 29.

Function	Average Minutes	Percentage
Research	6.2	31.7 %
Creating record	6.7	34.3 %
Housekeeping	6.6	33.8 %
TOTAL	**19.5**	**99.8 %***

* Rounding causes the total to be less than 100%

Figure 29: The time and percentage to change corporate body authority records on OCLC

It took eight minutes to change the shortest record for a corporate body. The statistics for the record are:

Research: 3 minutes
Creating the record: 3 minutes
Housekeeping: 2 minutes
References: 3

It took 45 minutes to change the longest record for a corporate body. The statistics are:

Research: 15 minutes
Creating the record: 20 minutes
Housekeeping: 10 minutes
References: 4

FINDING
The time to change the authority records for corporate bodies submitted during the project ranged from 8 to 45 minutes, with an average time of 19.5 minutes

The times required to change an authority record for a personal name compared to that of a corporate body differed significantly. A personal name record took an average of 12.6 minutes, while a corporate body took 19.5 minutes.

Analysing the times for different tasks indicates that the research for a corporate body record took 31.7% of the total time, and a personal name, 42%. No significant difference in the process of changing the record emerged. For personal name records it amounted to 34.8% of the time and 37.3% for corporate body records. The biggest difference was evident in the time required for housekeeping. Of the total time spent on corporate body

authority records 33.8% was used for housekeeping compared to 23.2% in the case of personal names. Corporate bodies are notorious for name changes and this could be an explanation for the longer time requirement for housekeeping.

The number of references in the authority records submitted during this study is discussed below.

5.5.5 The number of references in authority records

"Authority Control Simply Does Not Work" is the title of a controversial article published by Ayres (2001: 52) who noted that cross references and see also references had been sidelined and were rarely, if at all, used to provide links. This is in spite of the fact that international standards make provision for their use. The two reasons are:

- the standards themselves are complex
- economy - authority control as applied currently is labour intensive and expensive, and cross references increase the cost of authority control.

No one disputes that cross references are useful, but there seems to be little awareness of the fact that they are essential if authority control is to function optimally. Without a comprehensive set of cross references to ensure that users are not misled into believing that the heading they have chosen would produce all the material that they are looking for, all the work put into authority control would be wasted (Ayres 2001: 53).

Ayres (2001: 53) was adamant that the reference structures in authority records seemed to be used selectively and not comprehensively. The researcher found this observation interesting and also disturbing. It was not possible to study the reference structure of the records created or changed during this project, but the researcher asked participants to count the number of references in each of the records that they had created or changed.

5.5.5.1 References in authority records created on OCLC

There were 953 references in the 776 authority records of personal names created on OCLC; an average of 1.2 references for each personal name authority record created. The 133 records for corporate bodies contained 150 references; an average of 1.1 references per record created.

Function	Number of Records	Number of References	Average
Created personal name records on OCLC	776	953	1.2
Created corporate body records on OCLC	133	150	1.1
TOTAL	**909**	**1 103**	

Figure 30: References in authority records created on OCLC

The average number of references per authority record (personal names and corporate bodies) is indicated below.

FINDING

1 103 references ÷ 909 records = 1.2 references per authority record created on OCLC

5.5.5.2 References in authority records changed on OCLC

Of the 195 authority records for personal names changed on OCLC as part of this study, 305 references were given - an average of 1.3 references for each personal name record. The thirteen records for corporate bodies that were changed contained 63 references - an average of 4.8 references per record.

Function	Number of Records	Number of References	Average
Changed personal name records on OCLC	182	242	1.3
Changed corporate body records on OCLC	13	63	4.8
TOTAL	**195**	**305**	

Figure 31: References in authority records changed on OCLC

It is interesting to note that the records for corporate bodies that were changed contained more than double the average number of references compared to the records for personal names. This is consistent with the increased time required to change a corporate body authority record.

FINDING

305 references ÷ 195 records = 1.6 references per authority record changed on OCLC

To summarise: when comparing the number of references in the newly created records with the number of references in changed authority records, it seems that personal name records that were created averaged 1.2 per record, and corporate bodies 1.1 references. The opposite is true when records are changed. Changed authority records for corporate bodies contained 4.8 references on average, whilst those for personal names contained only 1.3 references. The difference in the number of references between the records created and records changed is significant.

5.5.5.3 References in authority records created/changed on in-house library systems

Due to the various types and small number of records created and changed on in-house library systems, no distinction is being made between the different types of authority records received.

The 69 references in the 91 authority records created on in-house library systems averaged 0.7 references per record. The 36 authority records changed on in-house library systems during the study contained 33 references - an average of 0.9 references per record.

Function	Number of Records	Number of References	Average
Created in-house	91	69	0.7
Changed in-house	36	33	0.9
TOTAL	**127**	**102**	

Figure 32: References in authority records created and changed on in-house library systems

FINDING

102 references ÷ 127 records = 0.8 references per authority record created or changed on in-house systems

A significant difference between the numbers of references in authority records created and changed on OCLC compared to those on in-house library systems is evident. New records on OCLC contained 1.2 references on average, compared to an average of 0.7 references for records created on in-house library systems.

On average, records that were changed on OCLC, contained 1.5 references, compared to 0.9 references for records changed in-house.

5.5.5.4 Authority records on OCLC without references

A study of the records created on OCLC indicated that 211 out of 909 records, or 23.2%, did not contain any references. Of the OCLC records changed, 11.7%, or 23 of 195 records had no references.

Function	Number of Records	Number of References	Average
Created on OCLC	909	211	23.2%
Changed on OCLC	195	23	11.7%
TOTAL	**1 104**	**234**	

Figure 33: Authority records without references created or changed on OCLC

FINDING

23.2% of the authority records created on OCLC during the project did not contain references, and 11.7% of the authority records changed on OCLC during the project had no references

5.5.5.5 Authority records on in-house library systems without references

Due to the varied type and small number of records created and changed on in-house library systems during this study, no distinction has been made between the different types of records.

A study of the records created on in-house library systems during this study indicated that 52 out of 91 records or 57.1% did not contain references. Seven out of 36 or 19.4% of records changed on in-house systems had no references. This is tabulated in Figure 34.

Function	Number of Records	Number of References	Average
Created in-house	91	52	57.1%
Changed in-house	36	7	19.4%
TOTAL	**127**	**59**	

Table 34: Authority records without references created or changed on in-house library systems

FINDING

57.1% of the authority records created on in-house library systems during the project did not contain references, and 19.4% of the authority records changed on in-house library systems during the project, had no references

The number of authority records without references on OCLC, differ significantly from those on in-house library systems. Of the authority records created on OCLC, 23.2% did not contain references, compared to 57.1% of records created on in-house library systems. Of the authority records changed on OCLC, 11.7% had no references, compared to 19.4% of the records on in-house library systems.

The article by Ayres was greeted with a flood of letters to the editor (2002: 99-110) of the *Cataloging & Classification Quarterly* protesting the validity of his statements.

Of the authority records created during this study, 57.1% on in-house library systems and 23.2% on OCLC contained no references. This rather high percentage suggests that Ayres might have been correct in his assumption that reference structures had been accorded a low priority in authority control (Ayres 2001: 52).

5.5.6 Summary of the findings

The results of the cost and time study of authority control in academic libraries in South Africa can be summarised as follows:

5.5.6.1 Information on the participants

- The salaries of the cataloguers who took part in this study ranged from R87 386 to R164 788.

- The total working hours per day (excluding lunch times) of cataloguers who took part ranged from 5 to 7. 5 hours, and the annual leave ranged from 19 to 42 days.
- The cost per minute for cataloguers participating in the study ranged from R1.05 to R1.83.

5.5.6.2 Cost calculation for the creation of an authority record

- The cost of creating an authority record on OCLC ranged from R7.06 to R65.73, the average cost being R29.00.
- The cost of creating an authority record on an in-house library system ranged from R3.47 to R23.01, with an average cost of R6.91. Only two institutions supplied data, thus making the sample too small to assume statistically valid results.

5.5.6.3 Cost calculation to change an authority record

- The cost of changing an authority record on OCLC ranged from R13.44 to R62.10; the average cost being R20.57.
- The cost of changing an authority record on an in-house library system was R3.43. No statistically valid results could be assumed, as only one institution supplied data, making the sample too small.

5.5.6.4 The time required to create an authority record

- The time taken to create an authority record on OCLC ranged from 5.1 to 47.6 minutes; an average time of 19.4 minutes.
- The average times for the three tasks in the process of creating an authority record on OCLC were
  - research: 9.3 minutes (48% of the total time)
  - creating the record: 7.3 minutes (37.6% of the total time)
  - housekeeping: 2.8 minutes (14.4% of the total time).
- The time taken to create an authority record on an in-house library system ranged from 2.7 to 13.6 minutes, the average time being 4.6 minutes.
- The average times for the three tasks in the process of creating an authority record on an in-house library system were
  - research: 1.7 minutes (36.9% of the total time),
  - creating the record: 2.1 minutes (45.6% of the total time)
  - housekeeping: 0.8 minutes (17.4% of the total time).

5.5.6.5 The time required to change an authority record

- The time taken to change an authority record on OCLC ranged from 8 to 45 minutes, with an average of 13 minutes.
- The average time for the three tasks in the process of changing an authority record on OCLC were
  - research: 5.3 minutes (40.8% of the total time)
  - changing the record: 4.5 minutes (34.6% of the total time)
  - housekeeping: 3.2 minutes (24.6% of the total time).
- The average time to change an authority record on an in-house library system was 3 minutes. Since only one institution supplied data and the sample was small, no statistically valid results could be assumed.
- The average time for the three tasks in the process of changing an authority record on an in-house system were
  - research: 0.8 minutes (26.6% of the total time)
  - changing the record: 1.5 minutes (50% of the total time)
  - housekeeping: 0.7 minutes (23.3% of the total time).
- Since only one institution supplied data and the sample was small, no statistically valid results could be assumed.

5.5.6.6 Personal author versus corporate body authority records

- The average time to create an authority record for a personal name on OCLC ranged from 4.4 to 46.1 minutes; the average being 19.3 minutes.
- The average time for the three tasks in the process of creating an authority record for a personal name on OCLC were
  - research: 9.1 minutes (47.1% of the total time)
  - creating the record: 7.3 minutes (37.8% of the total time)
  - housekeeping: 2.9 minutes (15% of the total time).
- The average time to create an authority record for a corporate body on OCLC ranged from 6.1 to 75 minutes; 19.1 minutes being the average time.
- The average time for the three tasks in the process of creating an authority record for a corporate body on OCLC were

  - research: 9.9 minutes (51.8% of the total time)
  - creating the record: 7.1 minutes (37.1% of the total time)

    - housekeeping: 2.1 minutes (10.9% of the total time).
- The average time to change an authority record for a personal name on OCLC ranged from 8 to 45 minutes; the average time being 12.6 minutes.
- The average time for the three tasks in the process of changing an authority record for a personal name on OCLC were
    - research: 5.3 minutes (42% of the total time)
    - changing the record: 4.4 minutes (34.8% of the total time)
    - housekeeping: 2.9 minutes (23.2% of the total time).
- The average time to change an authority record for a corporate body on OCLC ranged from 17.3 to 45 minutes, averaging 19.5 minutes. Since only two institutions supplied data and the sample thus being too small, no statistically valid results could be assumed.
- The average time for the three tasks in the process of changing an authority record for a corporate body on OCLC were
    - research: 6.2 minutes (31.7% of the total time)
    - changing the record: 6.7 minutes (34.3% of the total time)
    - housekeeping: 6.6 minutes (33.8% of the total time).
- Since only two institutions supplied data and the sample thus being too small, no statistically valid results could be assumed.

5.5.6.7 The number of references in authority records

- Authority records created on OCLC contained an average of 1.2 references. Authority records created for personal names on OCLC during this project averaged 1.2 references, whilst records created for corporate bodies averaged 1.1 references.
- Authority records changed on OCLC contained an average of 1.6 references. Authority records changed for personal names on OCLC during this project averaged 1.3 references, whilst records changed for corporate bodies averaged 4.8 references.
- Authority records created on in-house library systems during this project contained an average of 0.7 references, whilst records changed averaged 0.9 references. Authority records on in-house library systems averaged 0.8 references.
- Of the authority records created on OCLC during this project, 23.2% did not contain references, whilst 11.7% of the records changed had no references.
- Of the authority records created on in-house library systems during this project, 57.1% did not contain references, whilst 19.4% of the records changed had no

references.

5.5.7 Comparison with other studies

5.5.7.1 Cost analysis at Indiana University

The difference between local authority work at Indiana University and work conducted via NACO is that the work is done by the principal cataloguer in the former instance and by the student terminal operator in the latter case. Indiana University's additional process to make authority work available nationally, account for 48.48% of their total cost of creating an authority record (Byrd & Sorury 1993: 118).

A comparison indicates that Indiana's University's "create" is similar to South Africa's "research". The elements carried out in Indiana's "input", "review" and "edit" corresponds with South Africa's "create", "replace" and "housekeeping" . This allows a comparison of the results of the Indiana University study and the South African study.

The results of this comparison are tabulated in Figures 35 and 36.

Function	Average Minutes	Percentage
Research	5.61	43.36%
Creating record	6.66	51.48%
Housekeeping	0.66	5.13%
TOTAL	**12.93**	**100.27%***

* Rounding causes total to be more than 100%

Figure 35: Indiana University: creating an authority record - time and percentage

Function	Average Minutes	Percentage
Research	9.3	48.0%
Creating record	7.3	37.6%
Housekeeping	2.8	14.4%
TOTAL	**19.4**	**100%**

Figure 36: South Africa: creating an authority record - time and percentage

A comparison of the time spent on research (the intellectual part of the process) indicated that South African cataloguers spent 48% of the total time on research, compared to 43.36% of the time at Indiana University. The complex network situation in South Africa

might be an explanation for this difference. Sabinet Online is the official OCLC agent in South Africa, and all records created or changed on OCLC are loaded onto Sabinet's SaCat database. This forces libraries in South Africa to search SaCat for an available record before they are able to create or change a record on OCLC.

The process of creating the record took an average 51.48% of the total time at Indiana University, compared to only 37.8% in South Africa. A reason for this is the use of a principal cataloguer for quality control at Indiana University. No library in South Africa indicated any process of quality control.

Should the person at Indiana University responsible for creating the record also carry out the quality control, it would take less time.

The housekeeping task took up 14.4% of the total time in South Africa, compared to a mere 5.13% at Indiana University. This is a result of South Africa's history of lack of authority control. A large number of libraries have huge backlogs in this respect.

By their own admittance, two factors increased costs at Indiana University:

- quality control by the principal cataloguer
- the use of a student to key in records.

NACO processes have recently been streamlined, and records can be keyed in directly onto OCLC or RLIN. Should Indiana University repeat their study it would probably yield very different results.

The study at Indiana University teaches that authority control is expensive. Their commitment to authority control and the NACO project stresses the importance of authority control in a library, and the importance of national co-operation.

5.5.7.2 Cost analysis at Ohio State University

Ohio State University preferred not to calculate the average time for creating an authority record, but indicated that it took between 37 and 176 minutes. In the South African study,

the records for a personal author took between 4 and 70 minutes and that of corporate bodies between 11 and 75 minutes. No information is available on the processes at Ohio State University, and it would therefore be unwise to make any further comparisons.

5.5.7.3 Cost analysis of Snyman and the National Library of South Africa

Snyman's study indicated that the average cost of changing an authority record was R20.00, including overheads. The South African study showed that the average cost to change an authority record was R20.57, excluding overhead costs. It is rather unfortunate that the National Library of South Africa (Pretoria) did not participate in the South African study as they are viewed as the leading library in South Africa with regard to authority control. Other libraries could have learned a lot from their experience.

5.6 SUMMARY

The different reactions to cost studies were: "We already know this"; "We don't need to know this"; "We don't want anyone to know this" (Richmond 1987: 16). Real cost on the creation of authority records in South Africa and the average cost of a new authority record in South Africa has now become available for the first time.

But cost studies need to be approached with caution. When stating that the average cost to create an authority record in South Africa amounts to R29.00, this should not be taken out of context. Morris (1992: 86-87) reported that authority work represented 13.9% of the total time required for cataloguing and only 9% of the cost of cataloguing. Until such time as a comprehensive South African cost study can be undertaken, findings could only be regarded and used as guidelines.

This Chapter provided a short description of unit costing and timing and outlined the different types of cost studies. The background of authority control in South Africa served as an introduction to the description of the process and methodology of information gathering for the unit cost calculation study in South African academic libraries.

Unit cost calculations were obtained for the creation and change of authority records on OCLC and in-house library systems in terms of the cost and time required. The time required to create or change personal names was compared to those for corporate bodies. The number of references in authority records was evaluated. All the findings were summarised and compared with studies at Indiana University, Ohio State University, and

the findings of Snyman.

From this cost study, it is indicative that central authority control within an academic library consortium is desirable. It takes an average of 19.3 minutes to create an authority record on OCLC, an international bibliographic utility, whilst the average time to create an authority record on an in-house library system is 4.6 minutes. Authority records created on OCLC contained an average of 1.2 references, whilst records created on in-house library systems contained an average of 0.7 references. This statistics may indicate that standards are relaxed when authority records are created on in-house library systems.

A Central Office for Authority Control can make sure that all the authority records created are of international standard and are available on the union catalogue for use by all the consortium members. Libraries who are not NACO participants will be able to request a new authority record. That will ensure optimal authority control within the consortium.

CHAPTER 6

HOW IS AUTHORITY CONTROL CARRIED OUT IN ACADEMIC LIBRARIES IN THE USA? - A QUESTIONNAIRE

6.1 INTRODUCTION

While authority control is a highly developed skill In the United States, authority control in South Africa has not developed at the same pace as bibliographic description.

The purpose of this Chapter is to analyse the results of a questionnaire sent to university libraries in the United States during October 2002. The resultant information is used in Chapter Seven to develop a Central Office for Authority Control who can streamline authority control for academic libraries in an academic library consortium.

6.2 THE RESEARCH PROCESS

Many different ways and means could be utilised during a research project to acquire information from individuals for example: the researcher could

- visit the person(s) and ask questions during a formal interview
- ask questions during a formal or telephonic interview
- use a written format.

Questionnaires seemed to be the most suitable as the information had to be obtained from the United States, because of their advances in authority control. The NACO Project of the Library of Congress (Section 3.8.6) will form the basis of the workings of the proposed Central Office for Authority Control to be developed in Chapter Seven.

6.2.1 Questionnaires as data collection tool

All data collection methods have positive and negative aspects and it was thus necessary to balance the advantages and disadvantages of the selected method for research purposes.

6.2.1.1 Advantages of questionnaires

Significant advantages of using questionnaires (Gillham 2000: 5-9; Peterson 2000: 29-44; Spunt 1999: 4-5; Oppenheim 1992: 102) are the following:

- **Low cost in time and money.** The overwhelming argument in favour of using

questionnaires is the cost factor. In terms of time and money, the financial costs of mailing questionnaires are small compared with travelling and other costs involved in interviewing. Telephone interviewing cuts out travelling costs but is still very time-consuming. The often-critical factor of time is however, the major saving when using questionnaires.

- **Ease of obtaining information from many people very quickly**. Responses via questionnaires can be obtained within a matter of weeks, compared to interviews that are more difficult and time-consuming to arrange and conduct.
- **Respondents are able to complete the questionnaires when it suits them**. Trying to find mutually convenient times make interviewing more complicated than questionnaires.
- **Analysis of answers to closed questions is relatively straightforward.** Because the choices of answers are categorised, some planning enables the coding of answers as soon as questionnaires are returned.
- **Less pressure for an immediate response.** Respondents are able to answer in their own time and at their own pace. They are able to consider their answers or check statistics, etc. if they wish to do so.
- **Respondent anonymity**. Some people feel freer with an anonymous style of responding. However, others may be cautious about committing themselves on paper.
- **Lack of interviewer bias**. There is evidence that various interviewers may obtain biased answers (Gillham 2000: 7).
- **Standardisation of questions.** If all respondents receive the same questions in the same format, one of the sources of bias could be eliminated. However, whether these questions are understood in the same way, is a different matter.

6.2.1.2 Disadvantages of questionnaires

Although the above presents a strong case for questionnaires, the negative aspects should also be considered (Gillham 2000: 9-13; Peterson 2000: 13-15; Spunt 1999: 4-5; Oppenheim 1992: 102-103):

- **Problems of data quality.** Without supervision, questionnaires could be completed in a hasty and careless way.
- **Low response rates.** Response rates frequently depend on:
  - whether the respondents know the researcher personally
  - whether the questionnaire is seen as interesting and worthwhile
  - the amount of time and trouble to complete and return the questionnaire.
- **Problems of motivating respondents.** Respondents are not strongly motivated to answer questionnaires unless they can see personal relevance.
- **The need for brevity and relatively simple questions.** Apart from agreeing that a questionnaire should be as short as possible, opinions on its length are divided. A short questionnaire could be considered to be too insignificant to be taken seriously.
- **Misunderstandings cannot be corrected.** Interviewers have the unarguable advantage of detecting and correcting misunderstandings immediately.
- **Questionnaire development is often poor.** Because questionnaires are fairly easy to develop, carelessness may result in quick and badly constructed questionnaires.
- **Seeking information through asking questions.** When using a questionnaire, the researcher does not have contact with the respondent. Personal contact, such as during an interview, allows the researcher to:
  - prompt respondents for an answer
  - clarify questions
  - ask more questions to obtain an answer.
- **Assumption that respondents have answers available in an organised fashion.** Straightforward factual questions do not pose a problem. However, when opinions are being sought this may prove much more problematic.
- **Lack of control over the order and context of answering questions.** In a questionnaire, as during an interview, questions are asked in a logical, developmental order. Should respondents answer questions at random, responses are not developed sequentially.
- **The wording of questions could have a major effect on answers**. Research indicates that apparently quite minor differences in wording or in the way the question is framed could produce radically different levels of agreement or disagreement, or other differences in the answers
- **People talk more easily than they write.** Fluency in written expression can be credited to a minority. Open-ended questions in a questionnaire are thus only appropriate when interviewing an educated, professional group. Even this may be

disputed, because writing takes time and effort, (Gillham 200:12).

6.2.1.3 Steps in constructing a questionnaire

Asking the appropriate questions to provide valid and reliable information for making a decision, testing a theory, or investigating a topic, is very important (Peterson 2000: 13). It is not the aim to provide a detailed description of questionnaire design in this Chapter. However, it is important to consider the process recommended by Peterson (2000: 13-27), used in the construction of the questionnaire for this study. The steps in constructing a questionnaire are illustrated in Figure 37.

6.2.1.4 The Target Group

Due to the large number of universities in the United States, it would be impossible to send questionnaires to everyone. The whole research process was to be conducted via e-mail and the questionnaire was available on the Internet only. It was therefore necessary to limit the respondents to those reachable via e-mail. An Internet search under http://www.universities.com and the *World of Learning, 2002 edition* were used to select the participants. All public universities offering four-year courses and longer with e-mail addresses to the Library's Technical Services Division were selected.

Two hundred and thirty messages containing the URL for the questionnaire were sent out via e-mail during the first week of October 2002. Appendix C contains a copy of the e-mail message. Appendix D contains a copy of the reminder that was sent during the last week of October.

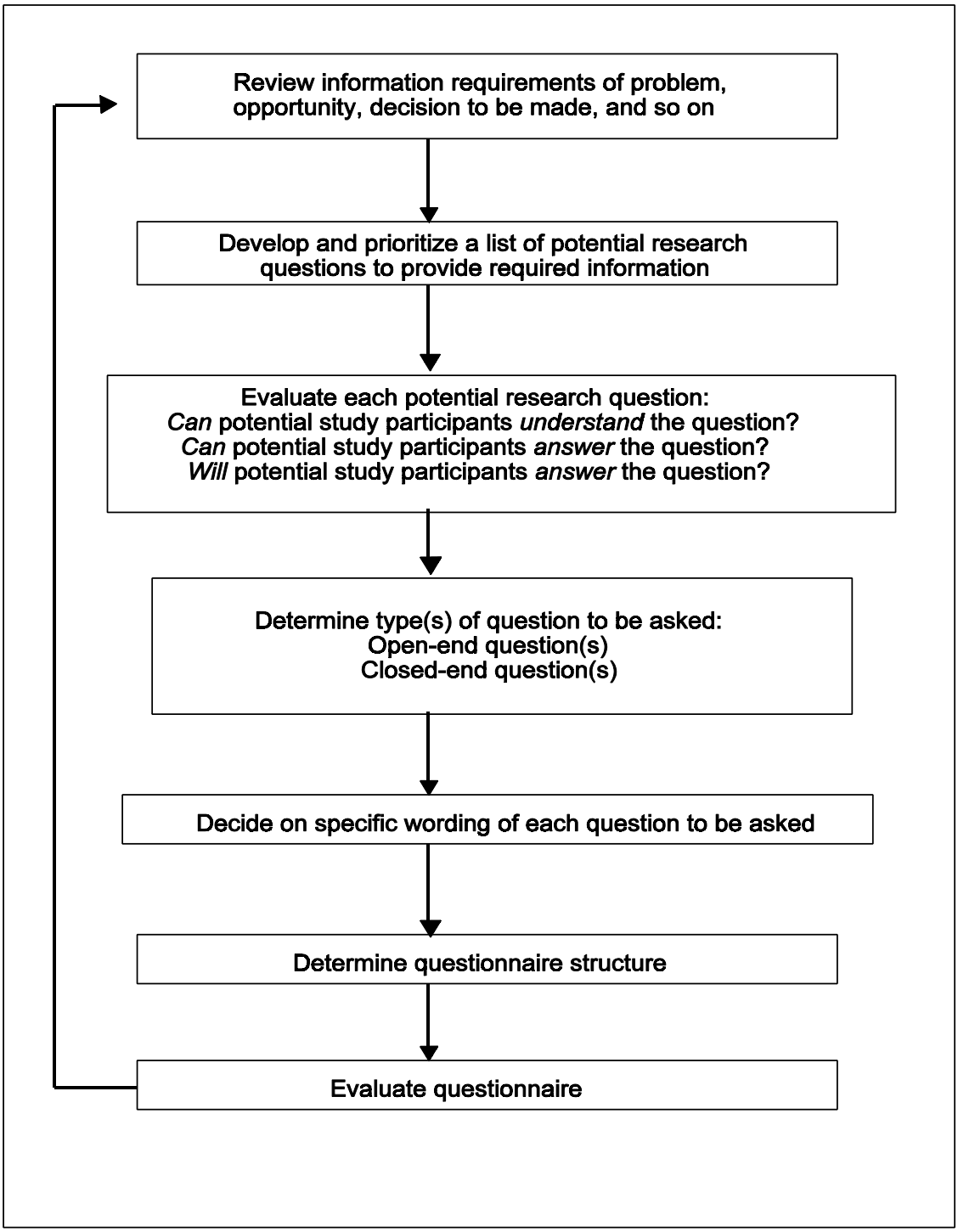


Figure 37: Steps in constructing a questionnaire (Peterson 2000:14)

Seventy-seven e-mail messages were returned with error messages either of “host unknown” or “unknown user”, resulting in 153 valid e-mail messages. One hundred and one completed questionnaires were received before the closing date of 30 October 2002, giving a response rate of 66%. The *Statistical Package for Social Science* was used to analyse the results. Results were rounded to the nearest single number.

6.3 RESULTS OF THE QUESTIONNAIRE

A copy of the questionnaire can be found in Appendix E. The 30 questions were divided into five categories:

- Authority control
- Library consortia
- Union catalogues
- Library co-operation
- General.

6.3.1 Category A: Authority control

Authority control is discussed in Chapter Three of this study. Some of the facts are tested in Category A to determine its application in the Central Office for Authority Control, developed in Chapter Seven.

6.3.1.1 Question 1

The purpose of the question was to determine the average number of cataloguers involved in authority control.

The results were:

- between one and five (76%)
- between six and ten (10%)
- between 11 and 15 (5%)
- more than 15 (9%).

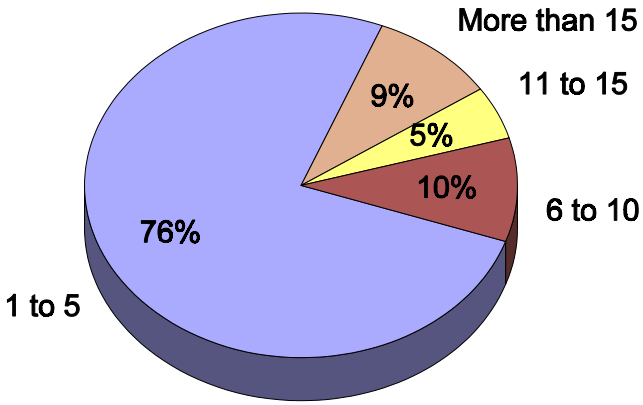


Figure 38: Number of cataloguers involved in authority control

6.3.1.2 Question 2

The purpose of Question Two was to determine the authority control tasks performed by cataloguers.

The results were:

- downloading authority records from other sources (20%)
- creating authority records (11%)
- downloading and creating authority records (53%)
- other tasks (16%), including:
  - Sending bibliographic records to the vendor.
  - Loading the authority records received from the vendor.
  - Maintaining the authority file, for example deleting duplicate authority records.
  - Creating statistical reports.

The above is illustrated in Figure 39.

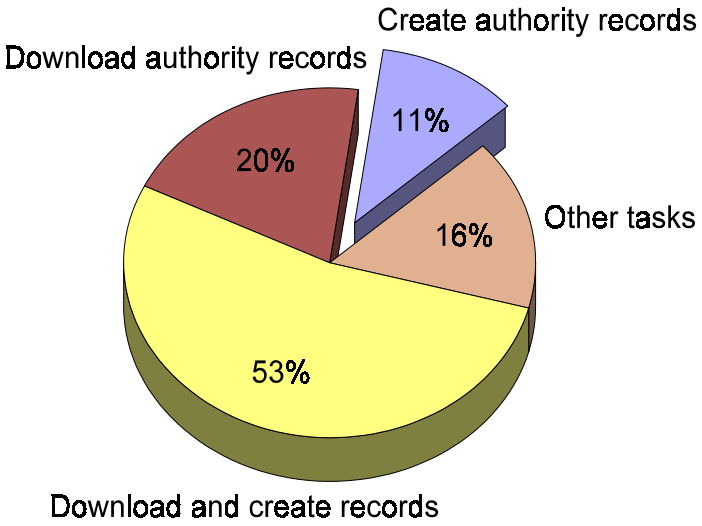


Figure 39: Tasks cataloguers are performing in authority control

6.3.1.3 Question 3

The purpose of the question was to determine if the library used a bibliographic utility in the process of authority control. Ninety-nine out of 101 libraries (98%) used a bibliographic utility, while only two libraries (2%) did not use such a utility and is illustrated in Figure 40.

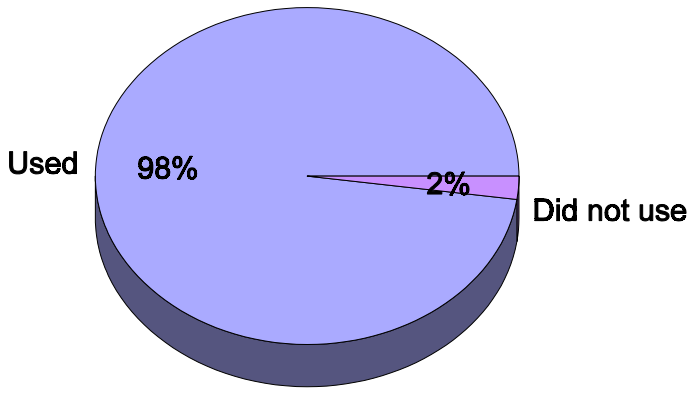


Figure 40: The use of bibliographic utilities in authority control

It can thus be concluded that most librarians are aware of the advantages associated with using bibliographic utilities.

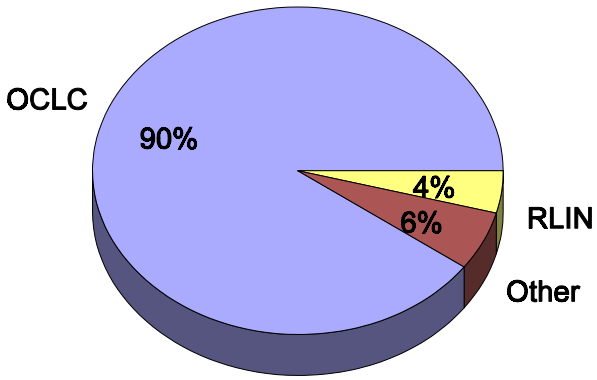
6.3.1.4 Question 4

The purpose of Question Four was to determine the bibliographic utilities that were being used in the process of authority control.

The results were:

- OCLC (90%)
- RLIN (4%)
- other bibliographic utilities (6%), including
  - Sirsi's DraNet Library of Congress authority records.
  - Both OCLC and RLIN.

Sirsi's DraNet Library of Congress authority records consist of authority records only and seem to be a network rather than a bibliographic record - according to the definitions of a network and a bibliographic utility given in Section 4.2.3. No use of WLN was mentioned. A query confirmed the statement of a respondent who indicated that WLN had merged with OCLC.



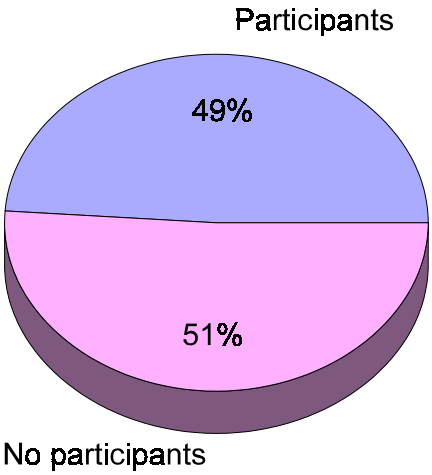
The above is illustrated in Figure 41.

Figure 41: Bibliographic utilities used in authority control

It is apparent that an overwhelming majority of libraries use OCLC for authority work. South African libraries are in the fortunate position of having access to OCLC and can thus utilise the authority records available.

6.3.1.5 Question 5

The purpose of the question was to determine the number of respondents who were NACO participants.



The results indicated that 49% of the respondents were NACO participants while 51% were not NACO participants. It is illustrated in Figure 42.

Figure 42: Number of NACO participants

Twenty-nine libraries were NACO participants (Question Five) and provided the number of cataloguers involved in authority control (Question One). A comparison led to the following results:

- one to five cataloguers involved in authority control - 27 (93%)
- six to ten cataloguers involved in authority control - 2 (7%).

The assumption can thus be made that a large number of staff is not a prerequisite for being a NACO participant. In Chapter Three, Section 3.8.6 it was mentioned that the initial goal of NACO was to create a national authority file to accommodate the needs of all libraries. As indicated above, NACO participation benefits a range of libraries.

6.3.1.6 Question 6

Question Six was open-ended to give libraries an opportunity to explain their reasons for participation or non-participation in NACO.

Reasons for participating were:

- Receiving in-depth training for many people at a relatively low cost.
- NACO participation allows libraries to solve problems encountered with headings on bibliographic records on the bibliographic utility.
- NACO participation give libraries more control over the processing done by their authority vendors.
- Professional development of staff.
- NACO participation cuts down on cataloguing time and increases accuracy and quality.
- Co-operative agreements make it possible to eliminate duplication of effort.
- Wanted a chance to create headings for their areas of emphasis.
- They wanted to be able to do maintenance on the LC authority records in OCLC.
- Give an opportunity to shape national cataloguing policy.

The reasons given by respondents are very similar to those of Watson for supporting the Program for Co-operative Cataloging (PCC) (Watson 2001: 1-5). NACO being one of the PCC's co-operative programmes, these reasons can thus also be applied to NACO

participation. Watson's reasons (2001: 1-5) in descending order of importance, were:

- Participation is an excellent opportunity for cataloguers, their public services colleagues and library administrators to slow down and set time aside to consider the bigger picture, to think about why cataloguing is performed, what makes it valuable, what is essential and what is not, and whether it makes sense to approach cataloguing and authority control in a co-operative environment, like NACO. NACO participation addresses and enhances issues such as timeliness, productivity, standards, record sharing and cost-effectiveness.
- NACO participation imposes a greater discipline upon the cataloguer that can pave the way for better original and upgraded copy cataloguing and authority control, higher morale, and potentially higher production and productivity for all NACO participants. Cataloguers would enjoy working at the highest level for which their training has prepared them.
- The overheads necessary for NACO participation is an investment that pays dividends that, in a short period of time, more than exceeds the costs. One person is designated as a principal point of contact and part of that person's time will be redirected from front-line production activities. At the same time, a number of tangible benefits will arise which offset any temporary loss in productivity, for example: the person will:
  - become a highly trained professional who can train other cataloguers
  - be skilled in the solving of unique and difficult problems
  - be there to provide direction, get answers and offer encouragement to cataloguers.
- Cataloguing and authority control in general are labour-intensive to begin with but, when the effort is shared according to mutually agreed-upon standards, it becomes less expensive for everybody involved. If cataloguing staff at an institution is skilled enough to create authority records with reference structures in their in-house system, they are probably already applying the principles and standards used in NACO.
- The most important reason why NACO participation is important, is that it's too expensive NOT to participate. The more participants, the lower the overall costs for everybody. It is less expensive in the long run if libraries work together and catalogue to mutually agreed standards. By becoming a NACO participant, libraries create and then share an abundance of wealth of expertise and knowledge that would be impossible for each library to obtain on its own.

When comparing reasons supplied by NACO participant respondents with those of

Watson, it seems that the reasons are very similar.

Reasons for not participating in NACO were:

- Lack of staff.
- Lack of qualified staff.
- A common collection with almost no new authorities needed.
- Lack of funds for training.
- Could not meet the 400 headings a year as recommended.
- Do not have the resources to do the necessary research needed for NACO participation.

6.3.1.7 Question 7

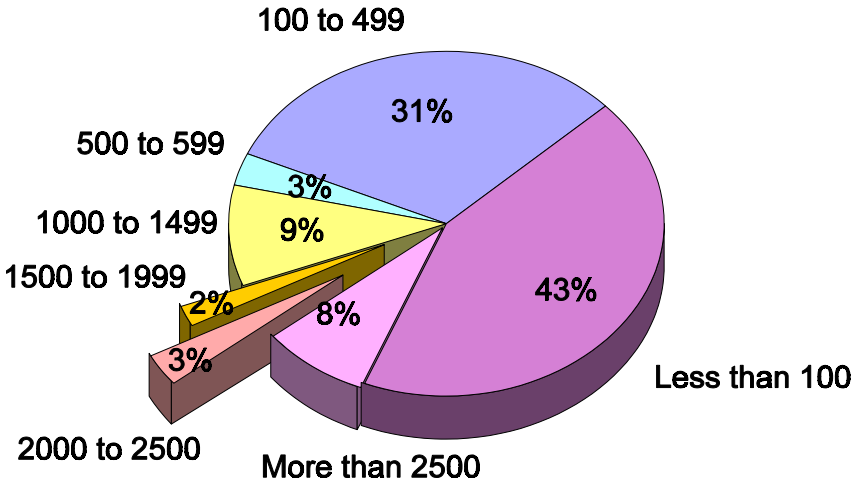
The purpose of this question was to determine the number of authority records that each respondent library created in a year.

The results were:

- less than 100 authority records (43%)
- between 100 and 499 authority records (31%)
- between 500 and 599 authority records (3%)
- between 1000 and 1499 authority records (9%)
- between 1500 and 1999 authority records (2%)
- between 2000 and 2500 authority records (3%)
- more than 2500 authority records (8%).

The above is illustrated in Figure 43.

Figure 43: Number of authority records created in a year



Contrary to perception, it is not necessary for libraries to create large numbers of authority records in order to reach the benefits of NACO participation. NACO suggests 400 authority records per year as a guide (Program for Cooperative Cataloguing 2002), but libraries unable to create this number, can consider NACO funnel membership (see Section 3.8.6).

6.3.1.8 Question 8

The purpose was to determine the number of respondents who participated in SACO.

Only 26% of the respondents participated in SACO, whilst 74% did not participate.

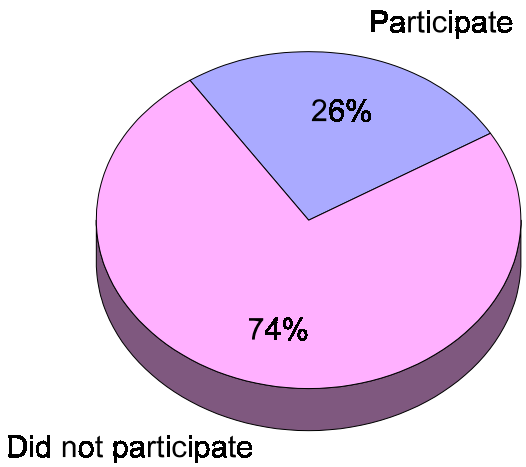


Figure 44:

Number of SACO participants

SACO is the subject headings component of the PCC. A comparison between the number of libraries that were NACO participants (Question Five) and the libraries that were SACO participants (Question Eight) indicated that only 33% of the NACO participants also participated in SACO.

One of the reasons why there are fewer SACO participants, is that SACO is exclusively for the creation of new Library of Congress Subject Headings (LCSH). Although LCSH is widely used, many libraries make use of other subject heading lists, for example Sears List of Subject Headings.

6.3.1.9 Question 9

The purpose of this question was to determine the number of subject headings submitted by SACO participants per year.

The results were:

- less than 10 subject headings a year (77%)
- between 10 and 19 subject headings a year (13%)
- between 20 and 29 subject headings a year (2%)
- between 30 and 40 subject headings a year (2%)
- more than 40 subject headings a year (6%).

The above is illustrated in Figure 45.

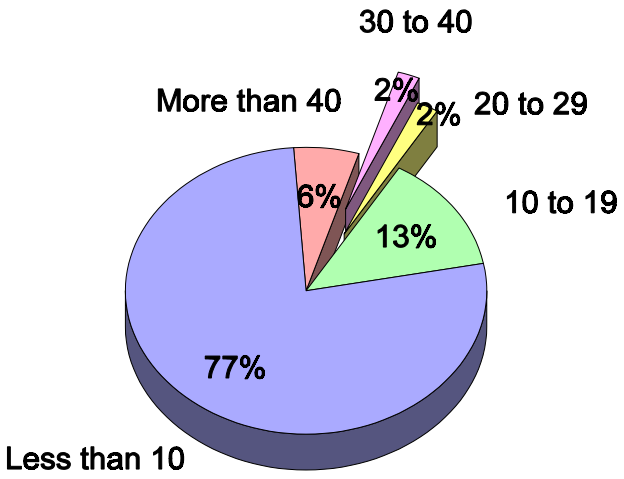


Figure 45:
Number of
subject headings submitted in a year

A possible reason for the low number of contributions to SACO when compared to the number of contributions in NACO, is the complex nature of subject authority records.

6.3.1.10 Question 10

The purpose of Question Ten was to determine the number of libraries that had outsourced authority control at some stage or another.

Seventy-two of 101 (71%) of the respondents had outsourced authority control at some stage in the library's history, while 29 (29%) had never outsourced authority control.

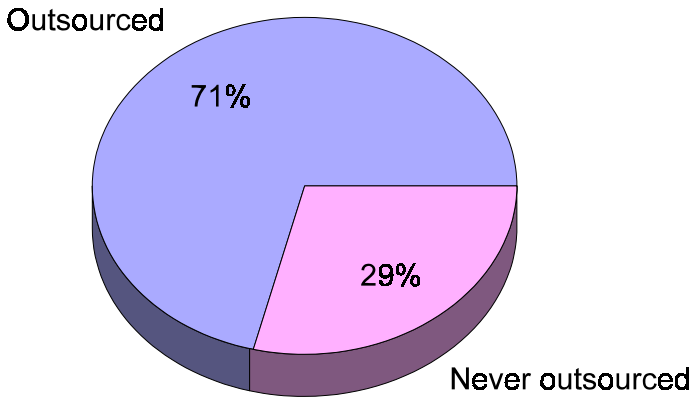


Figure 46: Number of libraries who have outsourced authority control

Some comparisons between the libraries who indicated that they had outsourced authority control (Question Ten) and libraries that were NACO participants (Question Five) indicated that 74% of the NACO libraries who participated in this study, had outsourced authority control at some stage in their past.

A comparison between the number of cataloguers who were involved in authority control (Question One) and the libraries that had outsourced authority control (Question 10) indicated that of those 52 libraries all (100%) indicated that between one and five cataloguers were involved in authority control.
It may be concluded that libraries with a small cataloguing staff are more inclined to outsource authority control than libraries with a larger number of authority control staff.

6.3.1.11 Question 11

Question Eleven was open-ended, allowing respondents to motivate their decision for outsourcing authority control.

Some of the reasons for outsourcing authority control were:

- Some people prefer to call it vendor supported authority control. Their authority file has nearly a million records. Through outsourcing, they can keep the authority records up to date monthly. They also get new headings from the vendor, allowing staff to concentrate on bibliographic record maintenance.
- When moved from one library system to another, libraries often "washed" the whole bibliographic file and added authority records.
- It frees up catalogers for other projects.
- Some libraries outsourced the routine search for "new" headings, because it is time consuming.
- Retrospective conversion were often outsourced.
- The vendor is able to automatically supply a large percentage of non-problematic headings.
- The vendor is able to supply changed records and notifications.
- Consortium participation prescribe outsource authority control.
- The quality of vendor services is improving.
- Easier and cheaper than in-house.

The reasons for outsourcing authority control can be summarised as the following:

- It is easier to keep the authority file current.
- Staff shortages and lack of expertise make outsourcing cheaper for some libraries.
- Special projects can be outsourced.
- Retrospective projects are often outsourced.
- Before initial automation and/or moving from one library system to another the authority file are outsourced for clean up.
- In some instances, it is easier to outsource authority control in consortia.

Two respondents both indicated that:

- they could not outsource authority control, because it was expensive and the quality of the records was often not acceptable, and
- consortium participation forced the decision on them to outsource authority control.

6.3.1.12 Question 12

The purpose of this question was to determine how often respondents received authority records from the vendor.

The results were:

- daily (5%)
- weekly (12%)
- monthly (26%)
- annually (2%)
- other frequency (55%) including
  - bimonthly (2%)
  - quarterly (4%)
  - for a once off database clean up project (94%).

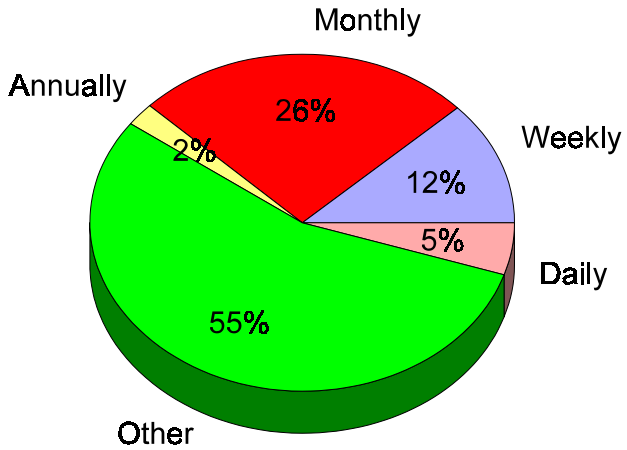


Figure 47: Frequency of authority records received from vendor

Receiving authority records monthly from the vendor, seems to be the most practical option, because it means that the authority file can be updated frequently whilst the update file is a manageable size.

6.3.1.13 Question 13

The purpose of Question Thirteen was to determine whether respondents who used vendor services for authority control, exercised quality control on authority records received.

The results indicated that 57% of the respondents who received authority records from vendors, carried out quality control on records received while 43% did not do so.

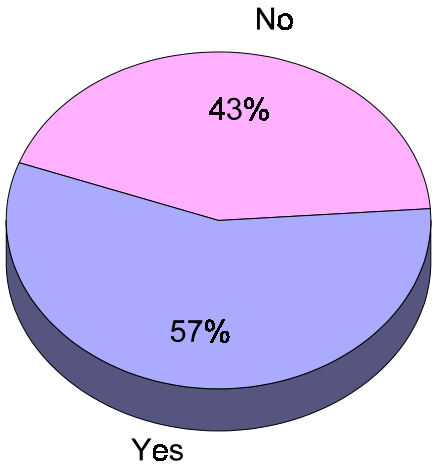


Figure 48: Libraries exercise quality control on records received from vendors

A comparison between libraries stating that they outsourced authority control (Question Ten) and libraries stating that they conducted quality control on the outsourced records, indicated that 97% of the libraries exercised quality control, whilst only one library out of 38 libraries (3%) did not do so.

6.3.1.14 Question 14

The purpose of this question was to determine whether libraries actually changed authority records received from vendors by adding references and/or notes..
The results indicated that 45% of the respondents who exercised quality control on

vendor records, added references and/or notes to such authority records, whilst 55% did not change the vendor authority records.

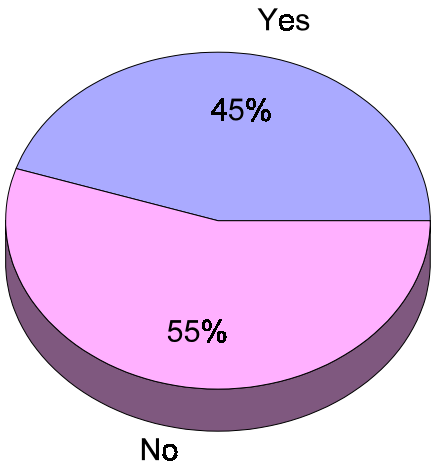


Figure 49: Changes made to records received from vendors

6.3.2 Category B: Library consortia

Section 1.3 describes the ad hoc collaboration in South Africa up to the stage that more formal collaboration agreements were suggested by Gerryts and De Bruin (Hooper 1989: 125 – 126), which resulted in establishing consortia.

The purpose of Questions 15 to 24 is to determine the status quo with regards to consortia in the United States, where consortia has long been established.

6.3.2.1 Question 15

The purpose of Question 15 was to determine if the respondent was part of a library consortium, and when the consortium was founded.

The results were:

- 53% of the respondents were not part of a consortium
- 2% of the respondents who were part of a consortium indicated that the consortium was founded before 1970
- 11% of the consortia were formed between 1971 and 1979
- 11% of the consortia were formed between 1980 and 1989
- 22% of the consortia were formed between 1990 and 2000
- only 1% of the consortia were formed after 2000.

The above is illustrated in Figure 50.

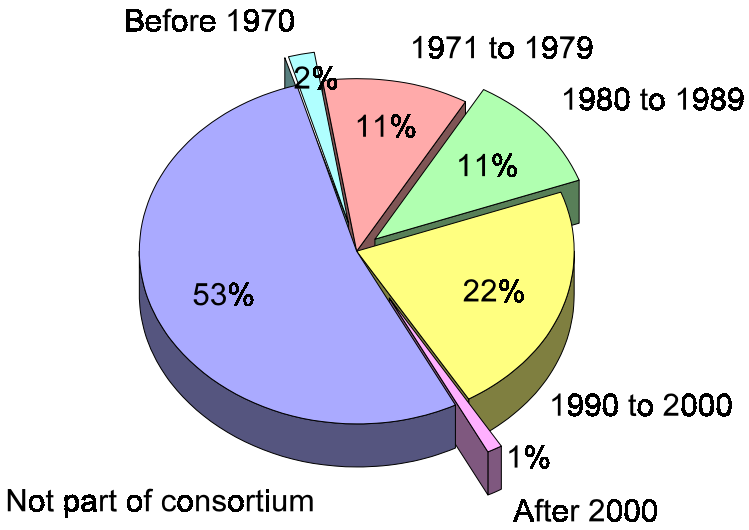


Figure 50: Time scale of the formation of consortia

This seems to be consistent with the findings of Hawthorn (Hawthorn, Frey & Roy 1999: 416) as described in Section 2.3, that consortium development in North America exploded between 1996 and 1998.

6.3.2.2 Question 16

The purpose of the question was to determine the types of libraries collaborating in a consortium.

The results were:

- consortia of libraries of the same type, for example academic libraries (64%)
- consortia of libraries mainly interested in the same subject, such as law libraries (18%)
- consortia using the same type of service facility (for example Innopac library system users) - none
- some other kind of consortium arrangement (18%), including:
  - Libraries in one city.
  - Libraries of all types in a defined geographic region.

The above is illustrated in Figure 51.

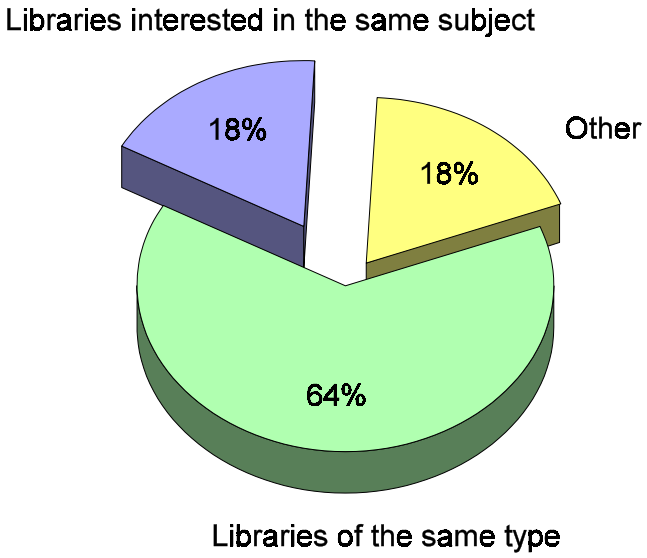


Figure 51: Types of libraries collaborating in a consortium

The above is consistent with Kennington's (1985: 7) categories of libraries of the same type, libraries interested in the same subject field, and closely located libraries as described in Section 2.5.

Several respondents indicated that their library formed part of several consortia - something that has never occurred in South Africa - thus an aspect for further research.

6.3.2.3 Question 17

The purpose of this question was to determine the average size of library consortia represented in this study.

The results were:

- one to five libraries in the consortium (19%)
- six to ten libraries in the consortium (13%)
- eleven to 15 libraries in the consortium (17%)
- sixteen to 20 members in the consortium (11%)
- more than 20 members in the consortium (40%).

The above is illustrated in Figure 52.

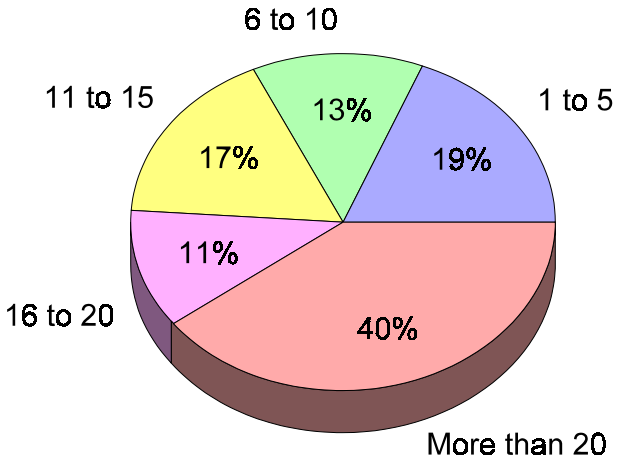


Figure 52: Number of libraries in a consortium

6.3.2.3 Question 18

The purpose of this question was to determine whether libraries in the consortium shared an automated library system with cataloguing facilities.

Results indicated that 56.3% of the consortia represented shared an automated library system with cataloguing facilities, whilst 43.8% did not share a system.

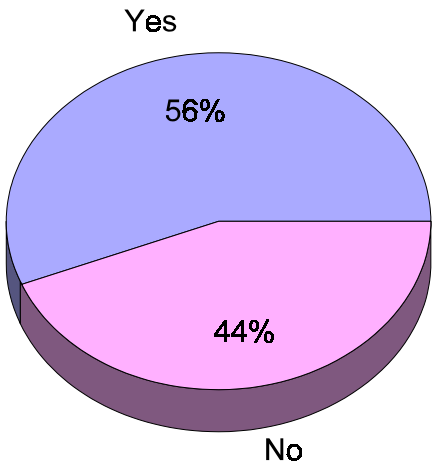


Figure 53: Shared automatic library systems in consortia

Comparisons between libraries indicated that automated library systems with cataloguing facilities were shared (Question 18) and Question 17 indicated that 60% of those who shared an automated library system had one to five libraries in the consortium, while 40% had a consortium of six to ten libraries. That indicates that it is easier for small library consortia to decide on an automated library system, than for bigger consortia.

6.3.2.5 Question 19

The purpose of the question was to determine whether the libraries represented were able to attract funding from non-consortium sources, such as the Mellon Foundation, etc.

Results indicated that 34% of the respondents stated that they attracted funding from non-consortium sources, whilst 66% did not attract outside funding. This is illustrated in Figure 54.

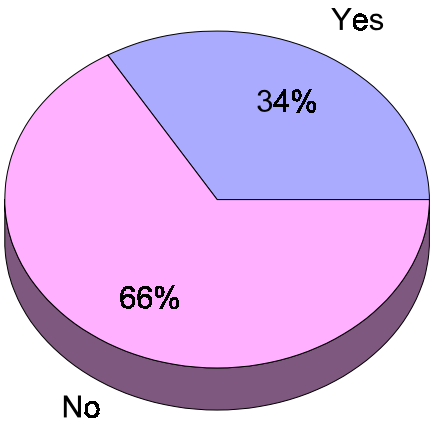


Figure 54: Funding attracted from non-consortium sources

Heath's (1989: 40-45) characteristics of successful consortia was discussed in Section 2.6. One of the characteristics is the ability to attract funding from non-consortium sources. The question can be asked if this is truly an important criterion for success.

A comparison between respondents who mentioned that they had attracted funding from non-consortium sources (Question 19) and the number of libraries in the consortium (Question 17) indicated an overlap of ten libraries. Of the funding from non-consortium sources, 60% was allocated to consortia with six to ten members, and 40% to consortia with one to five members.

It seems that a medium size consortium (six to ten members) have a better chance of attracting funding from non-consortium sources than small or big consortia.

6.3.2.6 Question 20

The purpose of the question was to determine whether the consortium had a structure of governance.

Results indicated that 77% of the consortia had a government structure, whilst 23% did not have such a structure. This is illustrated in Figure 55.

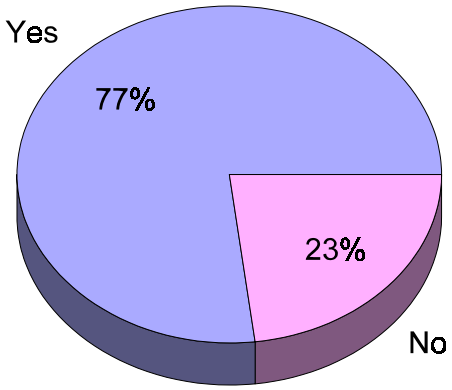


Figure 55: Consortia with government structures

Oder (2000: 49) and Heath's (1989: 40-45) characteristics of successful consortia were discussed in 2.6. One of the characteristics was a governance structure to allow members to work together in harmony. It seems that most consortia represented in this study considered a governance structure as being important.

A comparison between the consortia with a governance structure (Question 20) and those that indicated that they attracted funding from non-consortium sources (Question 19) indicated that 62% of the consortia with governance structures were indeed able to attract funding from non-consortium sources. In many instances such consortia probably have staff trained in fundraising that devote most of their time to this activity, whilst consortia without permanent staff need to obtain funding with people who are not specifically trained for this purpose.

A comparison between the respondents who indicated that they were NACO participants (Question Five) and consortia with a governance structure (Question 20) showed that 81% of the consortia with a governance structure were NACO participants.

The presence of a government structure lends itself to participation into co-operative projects, such as NACO.

6.3.2.7 Question 21

The purpose of the question was to determine the number of permanent employees of the government structure.

The results were:

- a government structure with one or two employees (14%)
- a government structure with between three and five employees (34%)
- a government structure with more than five permanent employees (52%).

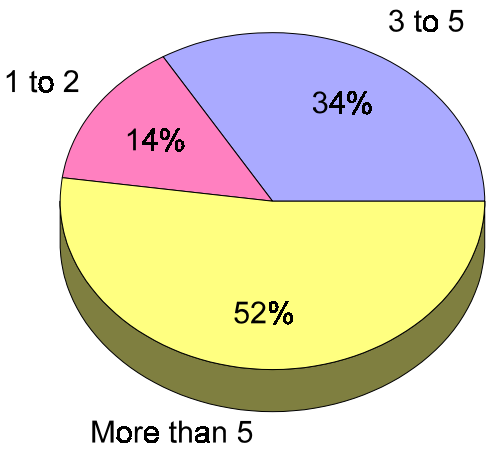


Figure 56:
Number of permanent employees in consortia government structures

This finding is consistent with Bostick and Dugan (2001: 129) and others who made it clear (Section 2.6.3) that central staff is essential to co-ordinate efforts and to communicate developments to the members.

6.3.2.8 Question 22

Question 22 was posed to determine whether the consortium had a written policy regarding member obligations, financial commitments, etc. While 91% of the respondents indicated that their consortium had a written policy, 9% indicated that they had none. This is consistent with the view of several authors, including Dannelly (1999: 66) (Section 2.6.4).

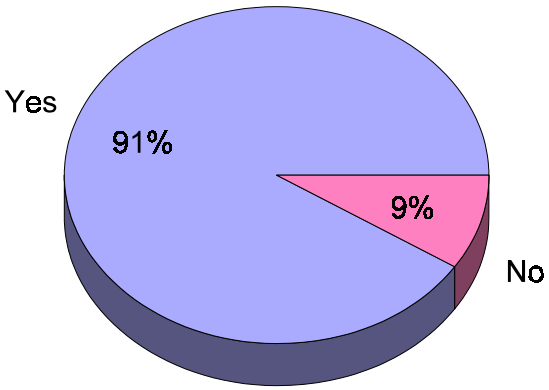


Figure 57: Written policies in consortia

6.3.2.9 Question 23

The purpose of this question was to determine if the consortium applied assessment criteria for regular evaluation of the consortium's ventures and programmes.

Results indicated that 60% of the respondents had assessment criteria for its ventures and programmes, whilst 40% did not use criteria. Most respondents thus agree with Sloan (1999: 1-2) and others, that successful consortia require criteria to assess the outcomes of their programmes (more in Section 2.6.6).

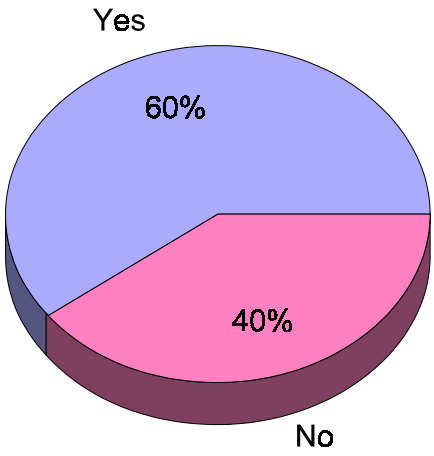


Figure 58: Assessment criteria in consortia

A comparison between the consortia with assessment criteria for programme evaluations (Question 23) and the number of libraries in the consortium (Question 17), indicated that 50% of the consortia with such criteria had between one and five members, and the other 50% had between six and ten members.

No library consortium with more than ten members has assessment criteria for the evaluation of their programmes. It seems that assessment criteria is easier to institute in small to medium size consortia.

6.3.2.10 Question 24

The aim of this question was to determine whether the consortia represented were members of the International Coalition of Library Consortia (ICOLC).

Results indicated that only 37% of the respondents were members of the ICOLC, whilst 63% did not belong to ICOLC.

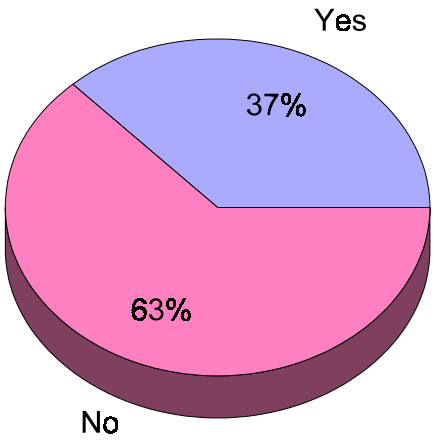


Figure 59: International Coalition of Library Consortia membership

A comparison between the libraries who were ICOLC members (Question 24) and an indication of the number of libraries in the consortium (Question 17), indicated that 29% of the consortia who were ICOLC members, had between one and five members, while 71% had between six and ten members. It seems that small to medium size library consortia favour membership to the ICOLC. No consortium with more that ten members indicated that they are members of the ICOLC.

A comparison between the libraries who were members of the ICOLC (Question 24) and consortia that stated that they attracted funding from non-consortium sources (Question 19), indicated that only 24% of the consortia who were ICOLC members, were able to attract funding from non-consortium sources, whilst 76% were not able to attract funding outside the consortium. Thus, membership of the ICOLC plays no significant role in attracting funding from non-consortium resources.

6.3.3 Category C: Union catalogues

Chapter Four contains a discussion of union catalogues and the role of Z39.50 in such catalogues.

Questions 25 to 27 investigate the role of union catalogues within consortia with the aim to incorporate the results in the development of a Central Office for Authority Control in Chapter Seven.

6.3.3.1 Question 25

The purpose of Question 25 was to establish whether the library contributed towards a union catalogue.

70% of the respondents indicated that they contributed towards a union catalogue, whilst 30% did not. This statistic shows that most respondents agree with Bostick and Dugan (2001: 128) that automated databases with cataloguing facilities and a union catalogue is at the heart of many consortium activities (Section 2.6.1).

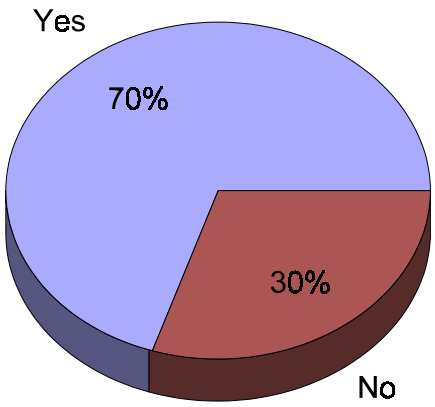


Figure 60: Union catalogues in consortia

A comparison between the libraries who were NACO participants (Question Five) and whether such libraries contributed towards a union catalogue (Question 25), showed that 68% of the NACO participants contributed towards a union catalogue, whilst 32% made no contribution towards a union catalogue. Contributing to a union catalogue seems to have a positive influence on NACO participation.

6.3.3.2 Question 26

The objective of this question was to determine the format of the union catalogue.

The results were:

- a centralised catalogue (22%)
- a virtual union catalogue (56%)
- another kind of union catalogue (22%) - no description provided.

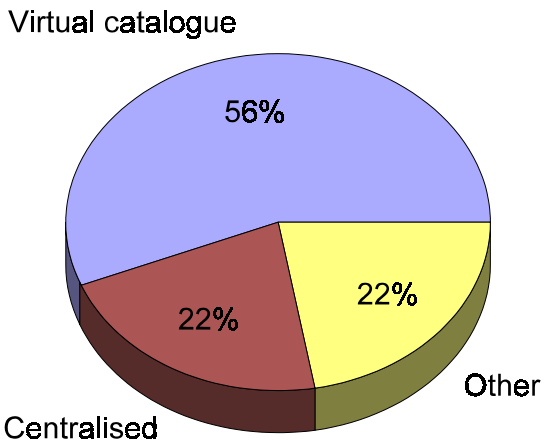


Figure 61: Forms of union catalogues

These findings are consistent with the statement in Section 4.3.3.2 that technology has had a major impact on the creation of union catalogues. It is no longer necessary to send records to a central point for assembly to create a union catalogue. Protocols for information retrieval promise seamless and transparent networked access to library resources.

6.3.3.3 Question 27

The purpose of the question was to determine whether the union catalogue provided access to other catalogues via Z39.50.

The results were:

- the union catalogue provided access to other catalogues via Z39.50 (61%)
- the union catalogue did not provide such access via Z39.50 (39%).

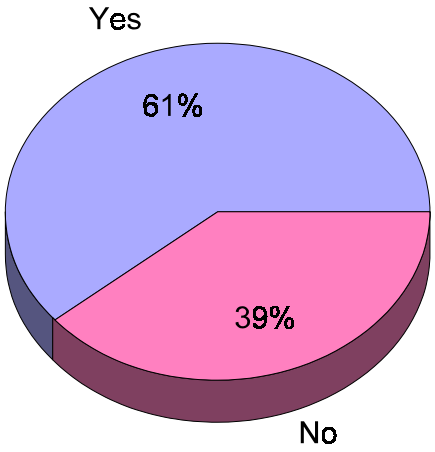


Figure 62:
Z39.50 access to other catalogues

It seems that most of the respondents were aware of the implications of Z39.50 as discussed in Section 4.4.2.4 and were doing their best to utilise the technology.

6.3.4 Category D: Library co-operation

Library co-operation in general is discussed in Chapter One. The purpose of questions 28 and 29 are to identify barriers to co-operation and to identify the areas mostly used in co-operation to incorporate these where possible in the Central Office for Authority Control developed in Chapter Seven.

6.3.4.1 Question 28

In Section 1.3.5 it was mentioned that Bishop (cited in Woodsworth 1991: 40) pointed out that personnel approach, personal characteristics and attitudes were important factors in library co-operation. The purpose of Question 28 was to provide respondents with an opportunity to indicate whether they perceived certain approaches, characteristics and attitudes in their library. Respondents had the opportunity to choose more than one

option.

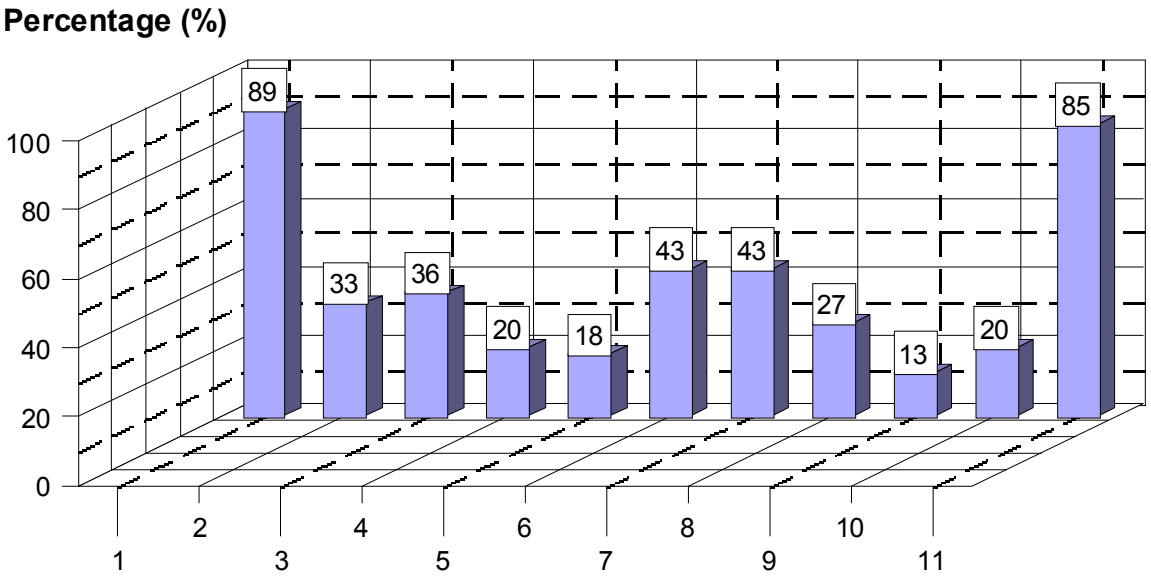
The results were:

- personnel positive and supportive towards co-operation (89%)
- complacency (33.0%)
- custodial mentality of librarians (36%)
- jealousy and stubbornness (20%)
- inertia and indifference among the staff (18%)
- the assumption that their organisation was unique (43%)
- difficult personalities (43%)
- fear of losing their autonomy (27%)
- a disinclination to experiment (13%)
- mistrust between libraries and librarians (20%)
- unwillingness to accept change and/or additional workload (85%).

The above is illustrated in Figure 63.

In general it seems as though American libraries approach co-operation positive. However, the most notable reservation expressed is an unwillingness to accept change and/or an additional workload. Change often imply more work and it is a human reaction to be unwilling, especially if the additional workload did not bring a big pay cheque.

1 Positive and supportive



2. Complacency

3. Custodial mentality of librarians
4. Jealousy and stubbornness
5. Inertia and indifference
6. Assumption that the organisation is unique
7. Difficult personalities
8. Fear of loss of autonomy
9. Disinclination to experiment
10. Mistrust between libraries and librarians
11. Unwillingness to accept change and/or additional workload.

Figure 63: Personnel approach, characteristics and attitudes perceived in library cooperation

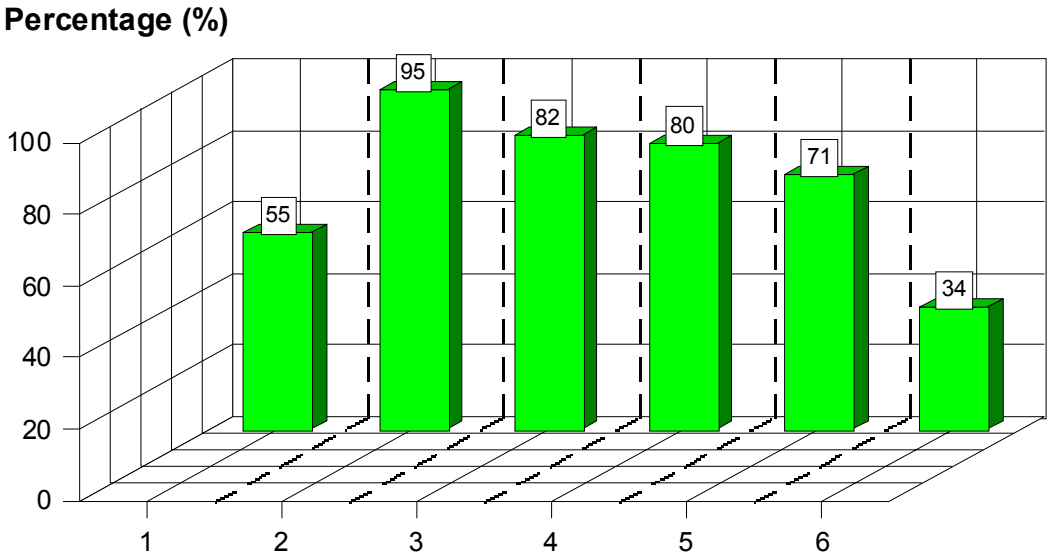
6.3.4.2 Question 29

In Section 1.3.6 several co-operative activities were discussed. The aim of Question 29 was to provide respondents with an opportunity to indicate co-operative activities supported by their library. Respondents had the opportunity to choose more than one option.

The results were:

- supporting collection development (55%)
- participating in interlibrary loans (95%)
- involved in bibliographic co-operation (82%)
- sharing expertise on management level (80%)
- co-operating in library automation (71%)
- taking part in international co-operation agreements (34%).

The above is illustrated in Figure 64.



1. Collection development
2. Interlibrary loans
3. Bibliographic cooperation
4. Shared expertise and information on library management level
5. Cooperation in library automation
6. International cooperation

Figure 64: Cooperative activities supported in libraries

6.3.5 Category E: General

6.3.5.1 Question 30

Question 30 was open ended to allow comments from respondents. The majority provided detailed explanations of other questions and general information.

6.4 SUMMARY

A short description of questionnaires as a data collection tool was given in this Chapter and the 0advantages and disadvantages of questionnaires were described. The steps in the construction of a questionnaire were indicated in a flow chart. The target group was described.

The questions were divided into five groups: Questions one to fourteen were about authority control. Questions 15 to 24 covered library consortia, and Questions 25 to 27 covered union catalogues. Category D, Questions 28 and 29 were on library co-operation in general, whilst the purpose of the last category and questions was to give respondents an opportunity to

- provide explanations regarding previous questions
- make general comments
- ask questions.

The purpose of the questionnaire was to gain insight into the authority control practices in university libraries in the United States and to test certain facts contained in Chapters One to Five. In Chapter Seven trends in authority control are evaluated and used for the design of a Central Office for Authority Control. The information collected via the questionnaires will be applied to develop the Office to make it as cost-effective as possible and to ensure that it meets the requirements of all involved in such a venture.

CHAPTER 7

A CENTRAL OFFICE FOR AUTHORITY CONTROL WITHIN AN ACADEMIC LIBRARY CONSORTIUM ‑ A PROPOSED SOLUTION

7.1 INTRODUCTION

Chapter One describes library co-operation as the pooling of resources of two or more libraries to satisfy user requirements. However, library co-operation often started with a gentleman's agreement that resulted in uneven distribution of advantages. For example, a large library would supply all the material for interlibrary loans while receiving very little in return. Consortia evolved as a more formal and structured way of co-operation, as described in Chapter Two. Consortia took off in the United States during the seventies and in South Africa during the nineties. Academic library consortia often start with a specific goal and purpose in mind, for example to attract funding for a library system, or to expand access to library material within a region. There are more options for co-operation within consortia that can be explored, for example: co-operation in authority control where one library can help others who do not have the expertise.

In Chapter Three, authority control was described as the ultimate technical services process. Based on complex rules, experienced staff creates authority records to guide users in their search for information. Authority control is a time-consuming and labour-intensive process. A cost analysis as shown in Chapter Five indicated that it costs a library in South Africa between R7.06 and R65.73 to create an authority record on OCLC. This situation highlighted the necessity to facilitate sharing and optimal utilisation of authority records as extensively as possible within consortia. If the consortium uses a union catalogue, authority records would be available to all the libraries within the consortium. Union catalogues and the more recent trend of virtual union catalogues via Z39.50 are discussed in Chapter Four.

The purpose of the questionnaire in Chapter Six, was to gain insight into authority control in university libraries in the United States. Important implications from the questionnaire that will be explored in Chapter Seven include the:

- role of a bibliographic utility in authority control
- importance of the re-use of authority records

- importance of participation in the NACO and SACO Programs of the Library of Congress
- outsourcing of authority control
- the role of union catalogues in library consortia
- formats of union catalogues.

Authority records need to be created on bibliographic utilities, even though it means that NACO participation is a prerequisite. A union catalogue is an important aspect to facilitate consortium activities and it is important that the union catalogue is maintained.

It seems therefore as if authority control within an academic library consortium using a union catalogue could best be conducted as cost-effective and timely as possible through a Central Office for Authority Control. The purpose of Chapter Seven is to develop a model for such a Central Office for Authority Control. The model will include the phases and steps for development, the objectives, structure, functions, etc. of such an office. A Central Office for Authority Control should co-ordinate and facilitate authority control within the consortium and assume control and responsibility for the maintenance of the union catalogue. This model is a new concept within authority control and will provide for all the authority needs within an academic library consortium with a union catalogue in South Africa.

The model for the development of a Central Office for Authority Control will be treated the same as the development of a new service. This model will therefore be developed according to the guidelines and steps of strategic planning.

Several planning models are available in the literature. However it is more desirable to be creative and innovative (Stueart & Moran 1998: 47). The phases and steps used in the planning of such a new service within the consortium are selected from planning models described by Rifkin and Pridmore (2001: 124-139), Hussey (1998: 511-546), Meredith and Mantel (1995), Benveniste (1989: 110-129) and Faludi (1984: 261-291), and applied to local conditions and situations.

7.2 DEVELOPMENT OF A MODEL FOR A CENTRAL OFFICE FOR AUTHORITY CONTROL

The development of any kind of new organisation, committee, office or service requires that an individual or group identify an idea and take the initiative (Hussey 1998: 517), often in response to a problem. The model to be used for the development of the Central Office for Authority Control, are displayed in Figure 65.

7.2.1 Exploratory phase

The exploratory or initiation phase (Rifkin & Pridmore 2001: 125) can be divided into four steps:

- Step 1. Idea originate
- Step 2. Informal discussions to assess support
- Step 3. Formal notification of information meeting
- Step 4. Feasibility and desirability meetings

7.2.1.1 Step 1. Idea originate

Based on the South African situation (discussed in Paragraph 3.9.3) and the lack of expertise to create authority records, the idea of a Central Office for Authority Control within an academic library consortium originate. The Central Office for Authority Control could facilitate the creation of needed authority records within the consortium, maintain the union catalogue, facilitate training, etc.

An individual or group of individuals committed to authority control within the consortium need to take the initiative to discuss the idea of a Central Office for Authority Control (Hussey 1998: 517). In order to sell the idea of a Central Office, it is necessary to have a leader with vision and the ability to overcome the negativity and inertia of colleagues (discussed in Section 2.6.5). The leader should be able to communicate enthusiasm and convince others of the benefits of the Central Office (Benveniste 1989: 212).

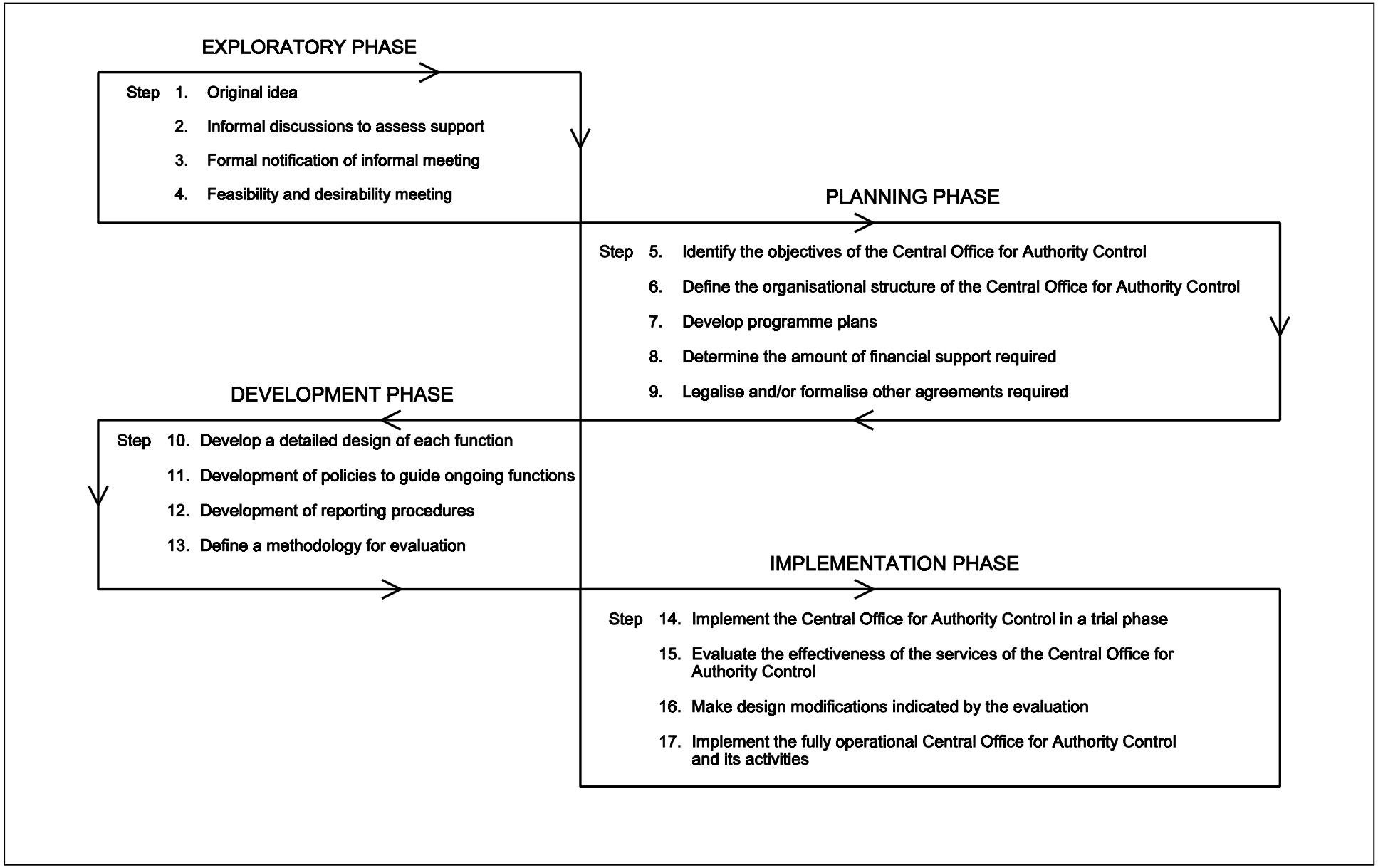


Figure 65: Model of the development process

The idea is thus to establish a Central Office for Authority Control within a consortium with the aim to create authority records that meet the requirements of the member's libraries.

With a virtual union catalogue, authority records created for individual libraries will benefit all the members of the consortium (Section 4.4.2). The resources within the consortium could be pooled to keep costs as low as possible. Libraries with the necessary expertise could have an opportunity to create authority records on the behalf of other libraries and should be compensated for their services.

Based on this idea, a model was created to facilitate steps for the development of the Central Office for Authority Control.

7.2.1.2 Step 2. Informal discussions to assess support

One of the most important tasks of the initiators should be to generate interest and support among consortium members (Benveniste 1989: 156-162), and to sell the idea of a Central Office for Authority Control and the benefits it holds for all participants. Potential members who will benefit from the idea need to be selected to achieve this aim.

In the beginning, the initiators could contact people familiar to them and with whom they have established relationships. This could eliminate early communication barriers. Most of the initial communication could be done informally by telephone or e-mail.

7.2.1.3 Step 3. Formal notification of information meeting

After the first informal communication, and if there are enough interested parties, a formal meeting need to be arranged to discuss the development of the Central Office for Authority Control. This is not necessarily a step on its own, but can be performed as part of the previous action.

Formal invitations to an information meeting need to be sent to all consortium members, even to those who might have indicated that they were not interested during the informal discussions. The invitation should include the purpose of the meeting, the names of all the institutions invited and a proposed agenda, including:

- An introduction of the new service by the initiators.
- A discussion of the known advantages and disadvantages of a Central Office for Authority Control.
- A review of other options.

Factors that could impede communication at this stage include:

- Difficulty in assembling people because the meeting is voluntary.
- Lack of money to support this early effort, making it difficult to bring together all the parties involved (Lemos 1989: 60-61).
- Most importantly, transferring concern from a participant's particular institutional situation to concern for the problems of the group.

At this stage, the biggest challenge would be to convince all consortium members to attend the meeting.

7.2.1.4 Step 4. Feasibility and desirability meetings

The feasibility and desirability of the Central Office for Authority Control need to be discussed during the meeting or meetings of library directors or authorised representatives. (Rifkin & Pridmore 2001: 125). A chairperson and secretary have to be designated (Hussey 1998: 516). The chairperson should be flexible and not try to impose personal views on the attendants. The initiator of the idea would therefore not be a suitable chairperson.

Initial meetings should be informal and conducive to "thinking aloud" and brainstorming. All should feel involved and encouraged to participate (Meredith & Mantel 1995: 455). Before any further action is taken, an agreement has to be reached that the Central Office is worthy of further investigation.

It is very important that library directors, heads of Technical Services Divisions and authority control librarians attend these meetings, because support of senior personnel is vitally important and they could also contribute much at this stage. Some directors are able to envision objectives more clearly, whilst librarians are more involved and up to date with cataloguing standards, system requirements, etc.

After agreeing in principle, potential users of the Central Office for Authority Control need to gather some information regarding their libraries, for example:

- Cataloguing staff statistics, such as number of staff members, specialists and subject areas.
- Library information resources budget.
- Budget for technical services.
- Cataloguing statistics.
- Cataloguing backlogs.

It is useful to have the exact information before the planning phase (Benveniste 1989: 220). Such information would be used for a situation analysis of potential users of the Central Office.

On completion of this step, consortium members should have a firm basis for deciding if the effort should be continued, and detailed planning can be started. A decision to implement the Central Office for Authority Control should be based on the following:

- The consortium members feel they would achieve levels of service and efficiency by working through and/or contributing to the Central Office that they could not achieve by working alone.
- The consortium members are willing to commit the required financial and moral support for the Central Office on a continuing basis.

Once exploratory meetings have resulted in a decision that the Central Office for Authority Control is viable, the Planning phase begins.

7.2.2 Planning phase

The following steps need to be taken during the Planning Phase:

- Step 5. Identify the objectives of the Central Office for Authority Control
- Step 6. Define the organisational structure of the Central Office for Authority Control
- Step 7. Develop programme plans
- Step 8. Determine the amount of financial support required
- Step 9. Legalise and/or formalise other agreements required.

The number of individuals involved in the planning phase can vary. The more people who are willing and able to help, the better the outcome would be (Hussey 1998: 516). It is important to involve staff from different levels within organisations, for example library

directors, heads of Technical Services Divisions and authority control librarians.

Money for the planning phase is seldom available. Making staff, space and amenities available are signs of true commitment, because these represent important resources and linkages with the institutions that provide them. Those who provide availability, have a stake in the success of the final product or service. Using the staff and facilities of consortium members also increases contact and trust (Benveniste 1989: 224).

7.2.2.1 Step 5. Identify the objectives of the Central Office for Authority Control

The success of a Central Office for Authority Control will depend on clearly defined objectives and the members' agreement to those objectives (Hussey 1998: 521; Faludi 1984: 265-266). The process of defining the objectives of the Central Office should include (Rifkin & Pridmore 2001: 126-127):

- A discussion of requirements and expectations during a series of meetings, with the goal of reaching an informal agreement on a set of objectives. Common problems should be identified and the possibility of common solutions explored. Some of the issues that need to be identified, include the
  - number of libraries that would use the Central Office
  - specific kinds of headings, such as uniform titles that would pose a problem
  - benefits involved in using the Central Office
  - role of the Central Office in the maintenance of the union catalogue.
- Utilisation of the experience of outside people through consultation. At the end of this series of meetings a set of objectives should have been finalised and informally agreed upon.
- Circulation of the objectives to all the members for approval to achieve a sense of unity and co-operation. This is important. Any reservations or disagreements need to be resolved at this stage.

After the series of meetings, consortium members have to agree on an objective for the Central Office for Authority Control, for example:

> "To provide library users better access to the catalogues of all the consortium members by increased co-operation in authority control within the consortium; through sharing the knowledge and experience of authority control librarians already employed in the

consortium; through maintaining a union catalogue of good quality; on condition that libraries would be compensated for their services".

7.2.2.2 Step 6. Define the organisational structure of the Central Office for Authority Control

The Central Office for Authority Control will require a well-defined organisational structure. Being a component within the consortium, the Office may have to work within the existing organisational framework of the consortium. The organisational chart in Figure 66 indicates potential placing for the Central Office for Authority Control within the consortium hierarchy, based on existing consortium structures in South Africa.

The next step would be to appoint a person to co-ordinate the activities of the Central Office for Authority Control. The Office co-ordinator should be responsible for guidance and the management control required to achieve the objectives of the service. Initially, a member of the consortium could be seconded to fulfil the duties of the co-ordinator on a full time basis. As the service develops, it may be necessary to appoint a permanent co-ordinator.

The office co-ordinator could:

- **Initiate action**: generate ideas, write proposals for funding and represent the libraries at consortium meetings by submitting reports on the activities, progress and problems experienced by the Office.
- **Present the Central Office to the library community** by attending library conferences and reporting activities; engaging in activities that promote co-operation with other libraries or groups of libraries, such as helping other consortia who are planning to establish such Offices.
- **Maintain adequate communication** by calling meetings, preparing agendas and distributing the minutes.

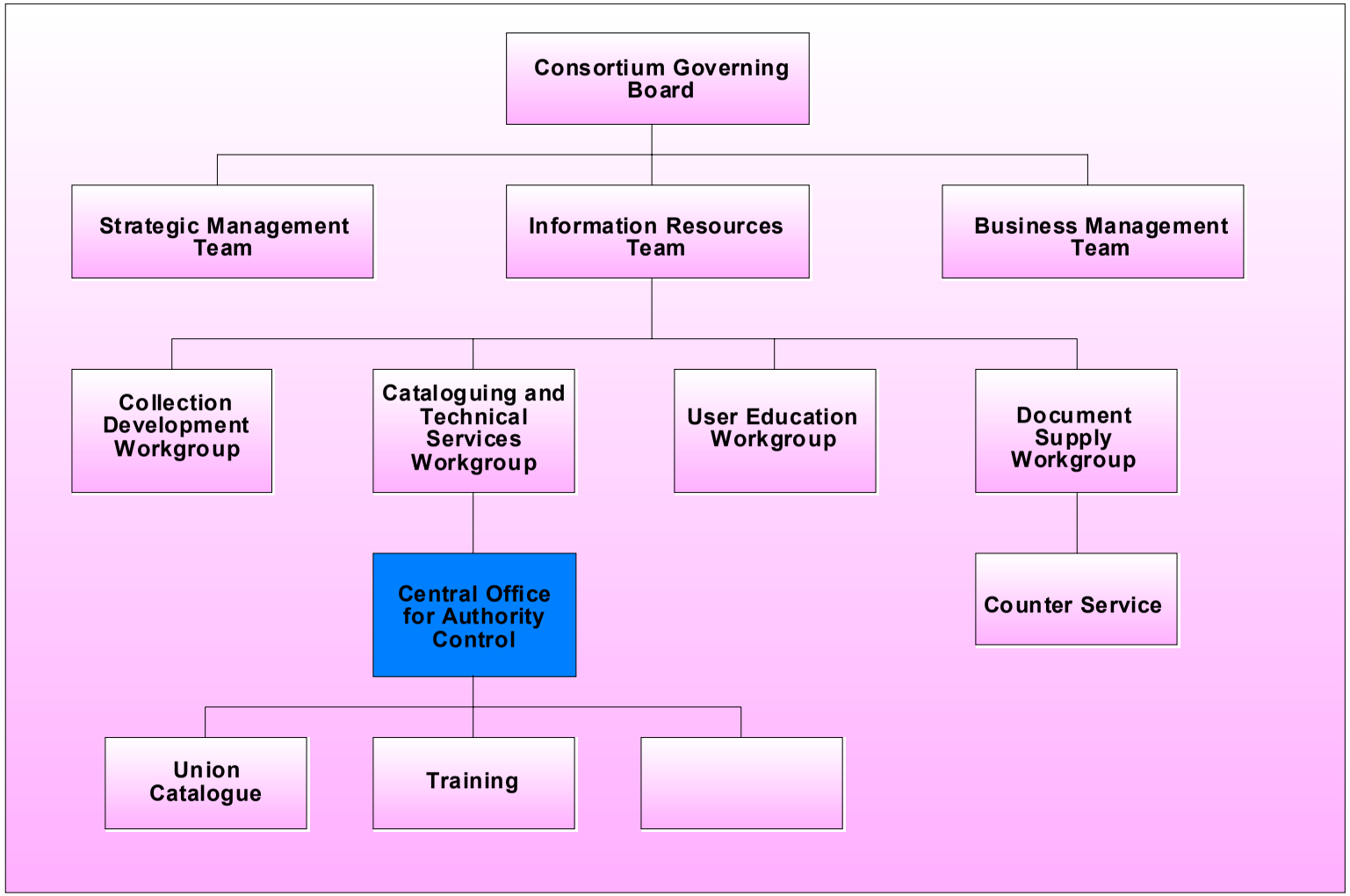


Figure 66: Example of the position of a Central Office for Authority Control in the consortium hierarchy

- **Observe and analyse operations**. Visits to individual libraries may be required to observe operations, investigate problems and propose appropriate solutions.

The co-ordinator for the Central Office for Authority Control should have the following qualifications:

- **Academic library experience**. The co-ordinator should be aware of recent trends in librarianship, especially in the field of cataloguing and authority control. Knowledge and experience with automated library systems is essential.
- **Administrative talent and experience**. The co-ordinator should have the ability to organise and to delegate responsibility, be innovative and keep abreast of developments in the field of authority control.
- **Ability to work with people**. The co-ordinator should be able to establish and maintain rapport with librarians on different levels. To a large extent the success of the Office depends on the confidence inspired by the co-ordinator.
- **Experience and sympathy with library co-operation projects**. The co-ordinator should have experience in working in a co-operative situation, be aware of recent developments in library co-operation, and believe in co-operation to improve library operations and services.
- **Strong problem orientation**. Problem-oriented people tend to adopt whatever problem-solving techniques may appear helpful to solve a problem, whilst discipline-oriented individuals tend to view a problem according to their discipline, ignoring aspects that do not fit the narrow confines of their educational and professional expertise (Meredith 1995: 98).
- **Personal qualities desirable in a co-ordinator include**: the ability to listen to people without forcing personal ideas on anyone; tolerance of human weaknesses; the ability to empathise with people and understand their positions, requirements and problems; the ability to work with senior management; perseverance and patience; the ability to handle conflict situations tactfully and preventing these from developing into major problems.

7.2.2.3 Step 7. Development of programme plans

Once the organisational structure is established, the activities of the Central Office for Authority Control can be planned. Functions that the Central Office would undertake should be chosen on the basis of the following (Rifkin & Pridmore 2001: 130-132):

- Requirements within the consortium with regard to authority control
- Resources available within the consortium
- Constraints
- Costs and benefits of the Central Office for Authority Control

(a) Requirements within the consortium with regard to authority control

Problems with authority control in South Africa were discussed in Section 3.9.3 and the sources for authority records were discussed in Section 3.9.4. With that in mind, the following personnel requirements with regard to authority control skills within the consortium were identified: People with the skills and knowledge to

- create new authority records
- change existing authority records
- provide training on authority control

(b) Resources available within the consortium

The resources available within the consortium need to be to listed, for example:

(i) Personnel resources

- Authority control librarians with NACO experience.
- Cataloguers specialising in music cataloguing.
- Cataloguers specialising in the cataloguing of law material.
- Cataloguers specialising in series cataloguing.
- Cataloguers specialising in the cataloguing of classical literature.
- Cataloguers with academic degrees in one or more of the following languages: English, Afrikaans, Zulu, Xhosa, Tswana, Russian, Hebrew, Arabic, French, Dutch and Italian.
- Cataloguers with a working knowledge of the following languages: North and South Sotho, Venda, Swazi, Portuguese, Spanish, Polish, Greek and Mandarin.
- Cataloguers with training experience.

(ii) Technological resources

On-line computer capabilities play a major role in successful co-operation (Section 2.4.3) and a virtual union catalogue is at the heart of co-operative activities (Section 2.6.1). Technological resources should include the following:

- Cataloguing work stations with at least the following technical requirements: Pentium III 733 MHz processor, 256 MB RAM, 15 GB hard disk drive, 1.44 MB stiffy drive, 56X CD-ROM drive, MS Window 98 or higher, MS mouse, “14" or 17" SVGA monitor, 104 key Windows keyboard, with access to dot matrix or laser printers.
- Photocopiers.
- Fax facilities.
- Flatbed scanners.
- E-mail facilities.
- Access to OCLC.
- Internet access.
- Web access to the National Library of South Africa’s catalogue.
- Well-equipped training facilities.

(iii) Resources in general

General resources should include:

- Well-developed reference collections.
- Although participation in the Central Office for Authority Control should be voluntary, the support of the library directors within the consortium should be regarded as a resource.

(c) Constraints

Possible constraints should also be acknowledged. These could include the following:

(i) Personnel constraints

- Lack of cataloguers with authority control experience.
- Lack of cataloguers who are up-to-date with developments in the field of authority control.
- Lack of computer experts with knowledge and understanding of authority control.

- Lack of computer experts with knowledge and understanding of Z39.50.

(ii) Technological constraints

- Lack of cataloguing workstations conforming to the minimum requirements. This situation will hamper the electronic transfer of records.
- Slow Internet connection.
- Different versions of Z39.50 being used by consortium members hamper working of a virtual union catalogue.
- Fire walls protecting library networks hamper working of a virtual union catalogue.

(iii) General constraints

- Library directors and decision makers lacking knowledge and understanding regarding the importance of authority control (Section 3.9.3).
- Lack of a library leading the field with regard to authority control in Africa (such as the Library of Congress in the USA) (Section 3.9.3).
- Lack of national bibliographies for African countries (Section 3.7.1.1).
- Lack of financial resources for new services.
- Budget constraints. For example, money allocated to the book budget, may not be available to create the authority file.
- A diversity of library users within the consortium requiring a flexible authority file.

(d) Costs and benefits of the Central Office for Authority Control

Outsourcing authority control to a vendor is not a cost-effective option for the consortium. The exchange rates make it very expensive and the lack of authority records for local authors remains a problem (Section 3.9.4.3).

It should be less costly to establish a Central Office for Authority Control and use personnel already working within the consortium. If suitable person(s) cannot be identified, people within the consortium should be given the opportunity to develop as specialists in this area and should receive assistance to further their skills, such as financial assistance to attend training courses.

7.2.2.4 Step 8. Determine the amount of financial support required

Once the objectives of the Central Office for Authority Control has been defined and tentative programme plans have been drawn up, the amount of financial support required to accomplish the objectives need to be determined (Hussey 1998: 524). It is important to estimate the budget required for the development and implementation of the Central Office carefully, particularly if it has to depend on fees or any other resources over and above staff time contributed by member libraries.

Closely related to the problem of determining the amount of financial support required, is determining the funding source for the new service. Two major types of funding are

- internal funding from consortium members
- external funds from non-consortium sources, such as Foundations.

Internal funding could be obtained from:

- **Dues** from member libraries or the universities - the major funding source for consortia and services within consortia.
- **Fees**. In some instances, consortium members are charged for certain services or products. Funding required to keep the service in operation until the fees are received poses a problem with this method.
- **Combination of dues and fees**. This can ensure that the Central Office stays in operation until fees are collected.

To be cost effective, the Central Office for Authority Control could be initiated by being decentralised, with all the participants working from within their libraries. An institution could for a limited period, second the Office co-ordinator full-time. Communication could be done via telephone, e-mail and fax and each institution could carry their own expenses. The Office co-ordinator, however, will need a dedicated telephone and fax line to speed up communication and workflow in the Office. The consortium should be responsible for the installation and rental of dedicated equipment.

It may be necessary for the Office co-ordinator to visit all the consortium members at least once during the first year. The consortium needs to be responsible for such travel expenses.
Authority control training should be the responsibility of the Central Office for Authority Control, but would not necessarily be given by the Office co-ordinator. The consortium should make an amount of money available to assist geographically distant members with

training. They could either use money for the trainer to visit such members, or arrange attendance at a central training venue.

Authority records should be created or changed for a fee. The average cost to create an authority record amounts to R29.00 and changing a record costs R20.57 (according to unit cost calculations done in Chapter Five). A percentage of the fee should be allocated to the Central Office. Some consortia work with an eighty/twenty percentage (Erasmus 2003). Eighty percent of the fee could go to the library doing the work, whilst 20% need to be allocated to the Central Office for Authority Control for further projects. Should the Central Office for Authority Control cease to exist, the consortium could use the money as seen fit. The cost structure should be revised at regular intervals.

Consortium accountants should construct an accounting system for billing purposes. The 900 field in authority records could be applied to identify records. The following formula could be used:

- Created by [MARC code] for [MARC code] on [day/month/year]
- Changed by [MARC code] for [MARC code] on [day/month/year]

This will allow accountants and the Office co-ordinator to create monthly reports for billing purposes of all the records created and changed.

An example of a proposed budget proposal for the Central Office for Authority Control can be found in Figure 67.

The accountants of the consortium should provide guidance on all aspects of accounting.

7.2.2.5 Step 9. Legalise and/or formalise other agreements required to establish the Central Office for Authority Control

It would be important to select the most appropriate type of legal agreement to create a viable framework within which the Central Office for Authority Control can function.

BUDGET FOR THE CENTRAL OFFICE FOR AUTHORITY CONTROL FOR 2003	
EXPENDITURE	**AMOUNT**

Communication (new fax machine, installation and rental)	R 6 356.00
Travel	R 17 000.00
Training	R 10 000.00
Emergencies	R 5 000.00
Total	**R 38 356.00**
INCOME	**AMOUNT**
800 new records created (20% of R26 400.00)	R 5 280.00
1200 records changed (20% of R25 200.00)	R 5 040.00
Total	**R 10 320.00**

Figure 67: Example of a budget proposal for the Central Office for Authority Control

An **informal agreement** consists of mutual decisions to initiate and use the Central Office. It is not binding on the parties and does not provide a formal, unambiguous record of agreements. This lack of any official record could lead to disagreements.

A **written agreement** is a more formal agreement and should list the activities in which the libraries have agreed to participate. In Section 1.3, Gerryts and De Bruin (cited in Hooper 1989: 125-126) recommended formal agreements between participants to ensure that individual and joint responsibilities are clearly spelt out.

An example of a formal agreement to confirm the establishment of the Central Office for Authority Control can be found in Figure 68.

The document should be sent to all the relevant parties for review and approval. It is very important that the agreement be reviewed and approved by the library directors of all the members of the consortium.

7.2.3 Development phase

In the Planning phase, an overall strategy for the establishment of the Central Office for Authority Control should be developed and the functions should be carried out are

AGREEMENT TO ESTABLISH THE CENTRAL OFFICE FOR AUTHORITY CONTROL

We, the undersigned members of_____ Consortium, wish to reaffirm our agreement to form a Central Office for Authority Control (further identified as The Office). The objective of The Office is:

To provide library users better access to the catalogues of all the consortium members by increased co-operation in authority control within the consortium, by sharing the knowledge and experience of authority control librarians already employed in the consortium, through maintaining a union catalogue of high quality, on condition that libraries will be compensated for the services they render.

We propose increasing our co-operation in authority control by working closely together in

- the creation of new authority records
- the changing of existing authority records
- the process of developing a larger number of expert authority control librarians.

We will assess the activities and viability of the Central Office for Authority Control after one year. The Office co-ordinator will present a monthly report to the Chairperson of the Consortium Cataloguing and Technical Services Workgroup, who will report back to the Information Resources Team.

The Accounting Department and the Office co-ordinator will be responsible for the financial administration of the Office.

Signatures: Date:

Figure 68: Example of a written Agreement for the Establishment of the Central Office for Authority Control

determined.

This section presents a general methodology for function designing and should be flexible enough to be used in the development of all the activities. The steps do not necessarily have to be conducted sequentially - some of the steps could be carried out simultaneously.

7.2.3.1 Step 10. Development of a detailed design of each function

Once the functions of the Central Office for Authority Control have been agreed upon, the procedures for conducting each function need to be established.
In the Planning phase, functions for the Central Office should be identified and could include:

- creating new authority records
- changing existing authority records
- training.

(a) Function of creating new authority records

(i) The **objective** could be:

> on request, to create a complete authority record within five working days, on condition that all the relevant information has been made available by the library requesting the record.

Outsourcing the creation of authority records to authority control librarians within the consortium is the only feasible solution in South Africa to overcome the lack of local authority records on bibliographic utilities. The outsourcing activity should be managed and controlled by the Central Office for Authority Control under the guidance of the Office co-ordinator. Libraries with authority control specialists will thus assist libraries without specialists by creating authority records on request. Libraries have to be compensated for each record created.

The process of authority control through the Central Office for Authority Control are visualised in Figure 69.

Authority records should be created on OCLC. Results from the Questionnaire (Section 6.3.1.3) indicated the importance of using bibliographic utilities for authority control. Ninety-nine percent of the respondents used a bibliographic utility, and ninety percent used OCLC.

To be able to create authority records on OCLC, libraries have to be PCC members and undergo NACO training (Section 3.8.6). The rationale is that NACO participation ensures mutually acceptable standards and records complying with international standards. It is also necessary to make the larger, leading libraries and countries aware of the problems and requirements of libraries in smaller countries (Section 6.3.1.6). PCC membership

affords a suitable forum for this purpose. A large number of technical services staff involved in co-operative cataloguing and authority control are unnecessary. Ninety-three percent of respondents to the Questionnaire (Section 6.3.1.5) indicated that they had

between one and five cataloguers involved in authority control.

(ii) **Resources** that could play an important role

NACO trained authority control librarians should be responsible for creating all new authority records within the consortium. The work could be divided as follows:

- Library A creates records for Library K, and all authority records required for Classical literature.
- Library B creates authority records for Libraries L and M.
- Library C creates authority records for Library J.
- Library D creates authority records for all series.
- Library E creates authority records for all music headings.
- Library F creates authority records for Libraries N and O.
- Library G creates authority records for law headings.
- Library H creates authority records for Library P, and assists with law headings.
- Requests for authority records in languages other that English and Afrikaans are to be channelled by the Office co-ordinator to the relevant library.

The allocation of responsibilities should be flexible.

Libraries creating authority records, will require:

- Workstations complying with at least the following technical requirements: Pentium III 733 MHz processor, 256 MB RAM, 15 GB hard disk drive, 1.44 MB stiffy drive, 56X CD-ROM drive, MS Window 98 or higher, MS mouse, “14" or 17" SVGA monitor, 104 key Windows keyboard, with access to dot matrix or laser printers.
- Access to Adobe Acrobat.
- Access to fax facilities.Access to e-mail facilities.
- Access to OCLC and Sabinet.
- Internet access.
- Web access to the authority file of the Library of Congress.

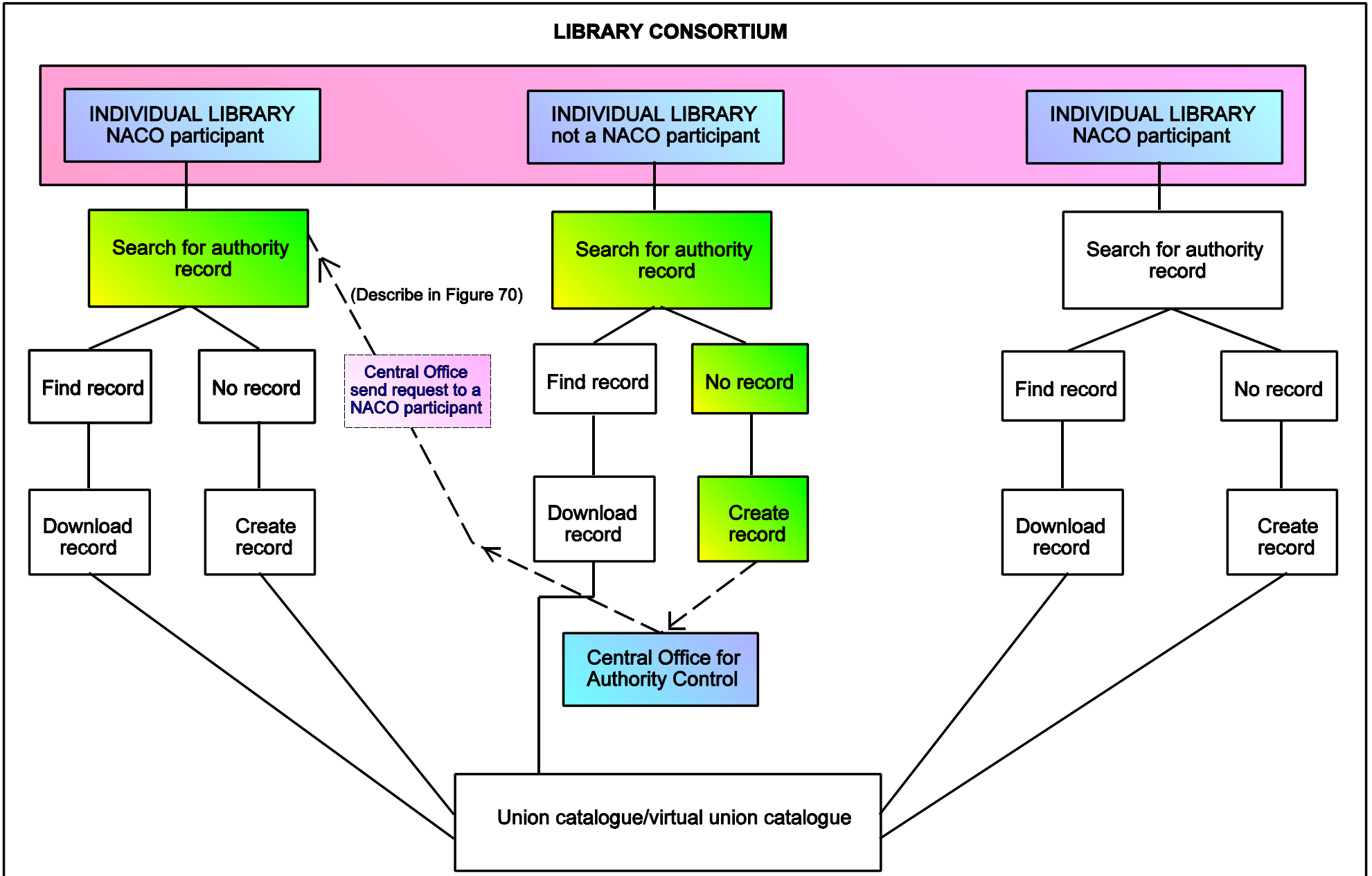


Figure 69: The process of authority control through the Central Office for Authority Control

- Web access to the National Library of South Africa's catalogue.
- Access to national bibliographies of other countries, especially African countries.

Libraries receiving new authority records from other libraries, will require:

- Workstations complying with at least the following technical requirements: Pentium III 733 MHz processor, 256 MB RAM, 15 GB hard disk drive, 1.44 MB stiffy drive, 56X CD-ROM drive, MS Window 98 or higher, MS mouse, "14" or 17" SVGA monitor, 104 key Windows keyboard, with access to dot matrix or laser printers.
- Access to fax facilities.
- Access to a flatbed scanner and Adobe Acrobat.
- Access to e-mail facilities.
- Access to OCLC and Sabinet.

(iii) **Description of the process** to create a new authority record

- Request is received via e-mail (scanned title page, jacket, etc.) or fax.
- Request is printed.
- Database is searched for an existing record.
- If a record is available, the record number is e-mailed to the requesting library.
- If no record is found, the information received is used to undertake research.
- Record is created on OCLC.
- Quality control is done.
- Record is saved on OCLC.
- Record number of the new authority record is sent to the requesting library.
- Requesting library downloads the new authority record.
- Both libraries complete statistics and evaluation forms.

A flow chart for the process is shown in Figure 70.

(i) The **objective** could be

> "on request, change an existing authority record within five working days, on condition that all the relevant information has been made available by the library who requested the change".

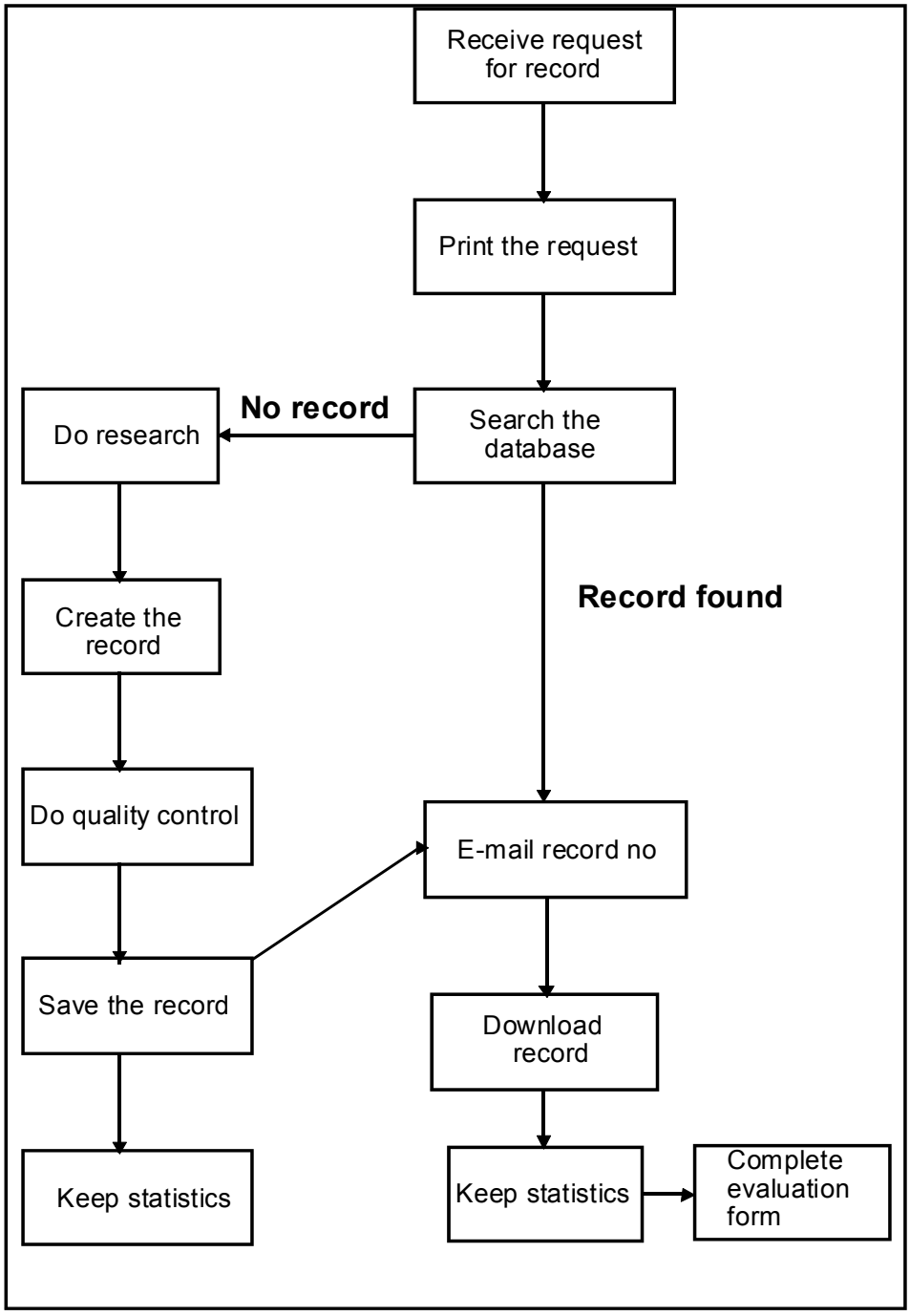


Figure 70: Flowchart illustrating the creation of new authority records.

The rest of the function is the same as described in (a)(i).

(ii) **Resources** that will play an important role are the same as those discussed in (a)(ii).

(b) Function of changing existing authority records

(iii) **Description of the process** to change an existing authority record:

- Request is received via e-mail (scanned title page, jacket, etc.) or fax.
- Request is printed.
- Database is searched for the record.
- If the record is found and is the correct one, the information is used for the research.
- Record is changed on OCLC.
- Quality control is done.
- Record is saved on OCLC.
- Requesting library is informed that the record has been changed.
- Requesting library downloads the changed authority record.
- Both libraries complete statistics and evaluation forms.

A flow chart for the process is shown in Figure 71.

(c) Function of training in authority control

(i) The **objective** could be

> "to give training to libraries in searching on various bibliographic utilities, the identification and interpretation of search results and the downloading of authority records on condition that the libraries are willing to carry the cost of the training if necessary."

To cut costs, the consortium should use resources of member libraries for training and use outside trainers only if no specialist is available within the consortium. Training in authority control should be the responsibility of the Central Office for Authority Control, but would not necessarily be given by the Office co-ordinator. The consortium should allow funds to assist geographically distant members with training. The money could be used for the

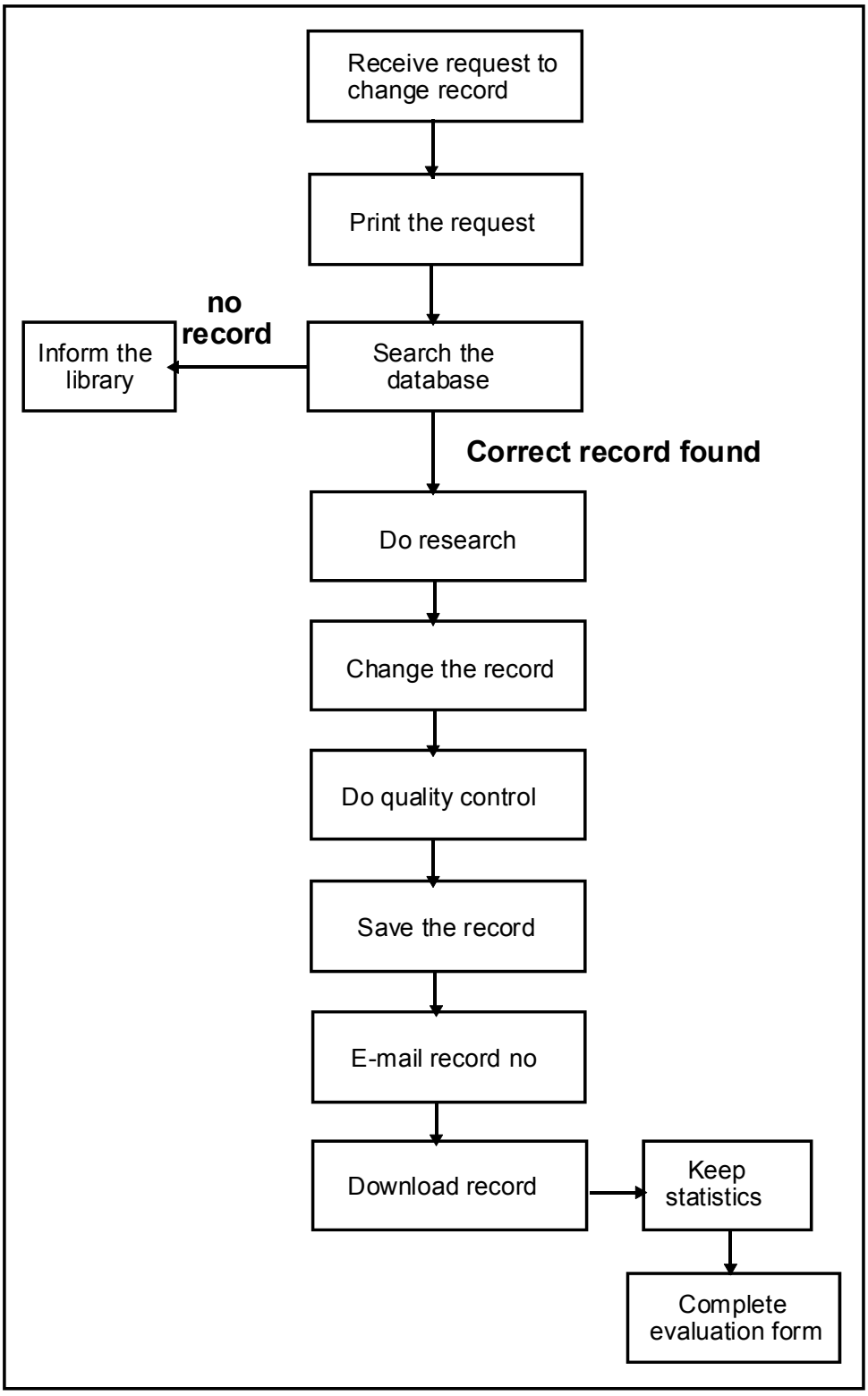


Figure 71: Flowchart illustrating the changing of authority records

trainer to visit members, or to allow them to attend training at a central venue.

(ii) Training **resources** should include:

- Authority control librarians with training experience.
- Well-equipped training facilities.
- Time and funding to develop training programmes.
- Time and funding for trainees to attend training programmes.

(iii) Description of training **activities:**

- Identification of specific training required.
- Sending a request for training to the Central Office for Authority Control.
- Office co-ordinator receiving training request.
- Office co-ordinator recruiting a suitable trainer.
- Office co-ordinator negotiating a suitable date for training.
- Office co-ordinator negotiating funds for training.
- Office co-ordinator oversee the development of training material.
- Office co-ordinator informs librarian of arrangements.
- Training given.
- Training session and trainer evaluated.

A flow chart for the process is shown in Figure 72.

Policies to guide ongoing functions can only be developed once specific objectives have been determined, alternative methods considered, resources identified, and each activity has been designed in detail.

7.2.3.2 Step 11. Development of policies to guide ongoing functions

Policy will have to be developed for each function of the Central Office for Authority Control (Section 2.6.4). A procedural manual containing a detailed description of each service or operation should be compiled. This manual should describe not only how a function is conducted, but also indicate eligibility for using the service. According to Riggs (1984: 66-67) the functions of a policy are the following:

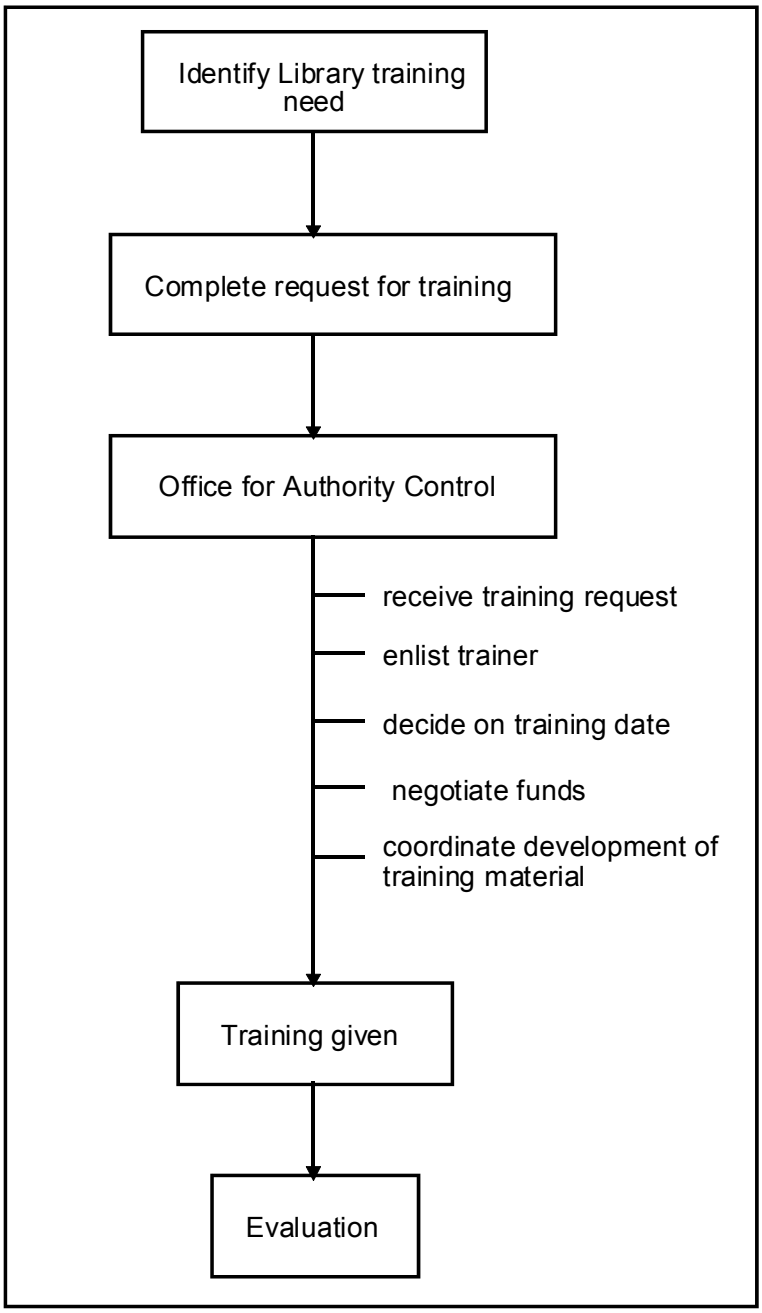


Figure 72: Flowchart illustrating the process of training in authority control

- Policy promotes uniform handling of similar activities, thus creating uniformity, which

facilitates better co-ordination and helps to reduce friction arising from favouritism or discrimination.

- Policy introduces continuity of action and decisions. It establishes a degree of order, regularity and stability.
- Policy acts as an automatic decision maker by formalising answers to previous decisions regarding the resolution of specific questions and problems.
- Policy offers a predetermined answer to routine problems.

The policies of the Central Office for Authority Control should incorporate the consortium's policies and guidelines for co-operation. In addition, the following policy statements could be included:

- fees
- response time
- quality control
- dispute resolution
- outside use of the services of the Central Office
- public relations.

If possible, the policy manual should be made available on the web page of the consortium. The Office co-ordinator should be responsible for the compilation and maintenance of the policy manual.

7.2.3.3 Step 12. Development of reporting procedures

Progress reports to all the consortium libraries could be an important way of keeping everybody interested, enthusiastic and supportive of the Central Office for Authority Control. Reporting also serves as an opportunity to review the progress of the Central Office against its objectives (Hussey 1998: 540).

A monthly report on the activities of the Central Office for Authority Control should be sent via e-mail or in print to

- representatives of the Consortium, for example the Co-ordinator of the Cataloguing and Technical Services Workgroup of the Consortium.
- contact persons within each library who would be responsible for distributing the

report within their library.

The report could also be in newsletter format and should be distributed regularly, for example within the first full week of each month. An example of monthly reporting in a newsletter can be found in Figure 73.

7.2.3.4 Step 13. Define a methodology for evaluation

The process of developing the Central Office for Authority Control should include means for collecting data and methods that could be applied to evaluate activities.

Participating libraries should regularly complete an evaluation form, for example every second month. The Office co-ordinator should process the evaluation forms and take appropriate steps to improve services, if required. An example of an evaluation form can be found in Figure 74.

The Central Office for Authority Control should also be evaluated. For example, after its first year of operation, the Central Office for Authority Control could be regarded as successful if:

- More than half the original members are still using the Office.
- New members were recruited.
- Non-consortium members were inquiring about, or are using the services of the Office.
- The Office could provide new services for consortium members, for example access to additional bibliographic utilities.

7.2.4 Implementation and evaluation phase

Once the structure for the Central Office for Authority Control has been developed, it has to be implemented and evaluated. The implementation procedure involves a series of stages necessary to ensure eventual successful implementation of the Central Office (Rifkin & Pridmore 2001: 132-133; Faludi 1984: 278-291). The process begins with a trial phase, the results of which are evaluated and used to modify the Central Office. The modified Central Office is finally established.

CENTRAL OFFICE FOR AUTHORITY CONTROL MONTHLY REPORT
AND NEWSLETTER
JUNE 2003

Authority records created: ___ personal name records ___ corporate body records
___ uniform title records ___ series records

Authority records changed: ___ personal name records ___ corporate body records
___ uniform title records ___ series records

Member participation:

Library J	___ new records	___ changed records
Library K	___ new records	___ changed records
Library L	___ new records	___ changed records
Library M	___ new records	___ changed records
Library N	___ new records	___ changed records
Library O	___ new records	___ changed records
Library P	___ new records	___ changed records

News from Library of Congress: New Yellow and Blue pages are available. Please download them from http://www.loc.gov/catdir/pcc/naco/updates02nov.pdf.

Training issues: The Office co-ordinator is still busy to negotiate with consortium Y regarding their request for authority control training. 15 August 2003 has been agreed upon as a tentative date.

General: The Office co-ordinator will attend the National Conference during September.

News flash: Congratulations to Nancy in Library O with the birth of her first grandchild. We hope little Nancy is going to be an excellent librarian!

Figure 73: Example of a monthly report of the Central Office for Authority Control

7.2.4.1 Step 14. Implement the Central Office for Authority Control in a trial phase

Once the Central Office for Authority Control has been developed, it should be tested during a trial period, for example for two months. This trial phase is an important opportunity to discover any difficulties or deficiencies in the final design of the Central Office. The more carefully the Central Office is evaluated during the trial period, the fewer the problems that will be encountered during final implementation.

CENTRAL OFFICE FOR AUTHORITY CONTROL EVALUATION FORM JUNE 2003
Completed for: Completed by: __ new records received. ___ changed records received. __ MARC coding errors found. __ missing MARC fields. __ AACR2R interpretation errors found. __ Typing errors in fields that affect retrieval. __ Typing error in fields that do not affect retrieval. Response time: ____% authority records were delivered within the time limit. Comments:

Figure 74: Example of an evaluation form for the Central Office for Authority Control

To familiarise all librarians with the Central Office, training programmes should be organised and a training manual be made available. Potential training sessions should be included in the budget.

Psychological adjustment that might have to be made when the new service is introduced has to be considered as an element of training. If users of the service were involved in the development from the beginning and know what to expect, they would be less likely to feel that the service has been thrust upon them.

7.2.4.2 Step 15. Evaluate the effectiveness of the services of the Central Office for Authority Control

During the development phase, arrangements should be made for collecting evaluation data. Each library should be required to go through the process of requesting an authority record, creating and changing records. Different kinds of records should be used during the trial period. For example, the procedure for personal names, corporate bodies and uniform titles need to be tested. Problems should immediately be reported to the Office co-ordinator. An evaluation form has to be completed for each authority record created and changed.

The primary purpose of evaluation is to assist in achieving objectives. All facets should be

tested to identify strengths and weaknesses. The result would be a set of recommendations that could assist in (Meredith & Mantel 1995: 568-569):

- Identifying problems early.
- Clarifying performance and costs.
- Improving performance.
- Locating opportunities.
- Evaluating the quality of the new service.
- Reducing costs.
- Speeding up the process of achieving results.
- Identifying mistakes, remedying these and avoiding them in the future.
- Providing information to all participants.

7.2.4.3 Step 16. Make design modifications indicated by the evaluation

Based on the evaluation data, modifications in the design of the Central Office for Authority control may be necessary (Rifkin & Pridmore 2001: 134-135; Hussey 1998: 539). Such changes may be minimal or extensive. Modification may be necessary as a result of technological uncertainty (Meredith & Mantel 1995: 256). For example, technological uncertainty is the fundamental causal factor for planners who erred in their initial assessment on achieving an objective or erred in their choice of proper objectives. Other changes result because the users learn more about what they can draw from the service or about the environment in which it can be used. An increase in user or team knowledge or sophistication is the primary factor for change.

Modification should involve consulting all the people involved in the planning process. Any changes may affect the procedural manual, which should be updated continuously.

7.2.4.4 Step 17. Implement the fully operational Central Office for Authority Control

Even though an activity such as shared cataloguing has been thoroughly tested, there may be unforeseen difficulties in the implementation of the Central Office for Authority Control. For example, all the users of the Central Office may not be using the same version of Z39.50. It is necessary that the designers be present during the initial implementation to ensure smooth operation and to note any changes that may be required.

7.2.4.5 Step 18. Evaluate the Central Office for Authority Control and its activities

Evaluation could or should be done during various points in time. When the purpose and objectives of the Central Office for Authority Control are being established, members should evaluate potential benefits. During operation, evaluation could improve the services rendered. Evaluation is once again a necessary procedural step when the Central Office is considering expanding, modifying or planning new services.

7.3 SUMMARY

The objective of this Chapter is to propose a Central Office for Authority Control within an academic library consortium using a union catalogue. Findings with regard to the cost of authority control in South Africa (described in Chapter Five), and authority control practices in the US (in Chapter Six) were used as basis for the suggestions. The union catalogue alone do not fulfill all the needs of academic library consortia in South Africa. It allows only for the "re-use" of authority records within the consortium. It do not cater for those libraries who do not have the expertise to create new authority records. The Office could facilitate the creation of new authority records for libraries who are not NACO participants, adding references and/or notes to already existing authority records, facilitate authority control training and maintenance of the union catalogue.

Four phases in the process of planning and developing the Central Office for Authority Control were identified, namely the Exploratory phase, the Planning phase, the Development phase and the Implementation and Evaluation phase.

The Exploratory phase was divided into four steps, ranging from the original idea of managing authority control centrally within the consortium and informal discussions to determine interest in the idea. The next steps are notification of meetings and meetings where all the consortium members gather to decide whether to develop the Central Office for Authority Control.

In the Planning phase, objectives are defined, the organisational structures are set up, programme plans are developed, a budget is drawn up and written agreements are finalised.

A detailed design of three possible functions for the Central Office for Authority Control was presented, including a detailed look at objectives, alternative methods of achieving objectives, the resources to be used and a comprehensive description of each activity. Policies, reporting procedures and a methodology for evaluation were suggested to guide ongoing functions.

The Implementation and Evaluation Phase described five steps, beginning with the implementation of the Central Office for Authority Control in a trial phase. In the next step the effectiveness of the Central Office must be evaluated and design modification made as indicated by the evaluation. The fully operational Central Office for Authority Control should be implemented. Evaluation should be done during various points in time.

Given the viability of authority control being handled centrally, the challenge would be to establish and use the Central Office for Authority Control in consortia with a clear requirement and strong interest in authority control.

The last Chapter will contain conclusions and recommendations, and topics for further study will be recommended.

CHAPTER 8

CONCLUSIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

Library co-operation is not a new phenomenon and can be traced back to 1832 in the United States (Becker 1969: 306-317) and to 1902 in Great Britain (Jefferson 1966: 12). Library co-operation was first documented in South Africa in 1933 (Library coöperation [*sic*] 1933: 8). Early efforts were centred on the co-operative production of catalogues to determine resources held by individual libraries.

The less structured and rather informal beginning of library co-operation developed and became more structured and led to the formation of library consortia. The first library consortium in the United States was established in 1933, and in South Africa in the early 1990s. Within consortia, different ways of co-operation developed, for example consortium members could decide to co-operate with regard to one or more of the following - collection development, interlending, wider access to library collections, co-operation in staff training and bibliographic co-operation. Academic libraries in consortia in South Africa focussed mainly on aspects such as:

- shared library systems
- document delivery
- resource sharing

It seems as if academic library consortia in South Africa acknowledged the importance of resource sharing and a shared catalogue, but there is little evidence of a concern with authority control as the foundation of quality control.

Bibliographic co-operation is usually seen as the establishment of a union catalogue providing access to the holdings of all the consortium members. Although bibliographic co-operation has been acknowledged as important, most of the attention has been focussed on related areas, such as the development of integrated library systems. Bibliographic co-operation with regard to bibliographic and authority records, the exchange of such records and standardisation have progressed slowly. Authority control as a way of co-operation is seldom mentioned in the South African context.

Problems experienced with authority control in South Africa are discussed in Section 3.9.3. that resulted in a back log of authority work in most South African academic libraries. Most libraries have problems regarding large numbers of headings without authority records, different forms of a name, spelling errors, etc. After Sabinet Online had started using the Innopac library system in 2000, bibliographic and authority records could only be added via OCLC. The aim was to ensure that only records of a high quality were loaded onto the SaCat database. This decision did not pose any problems regarding bibliographic records, but had a major influence on the subsequent development of authority control in South Africa. Only NACO participants may create or change authority records on OCLC. South African libraries were faced with two options. To

- create authority records not available on OCLC via in-house library systems, or to
- become NACO participants and create authority records on OCLC.

Massive duplication of effort and cost to consortium libraries made the creation of authority records via in-house library systems a very expensive option, and three consortia opted for NACO participation.

The purpose of this study was to find an answer on the following research question: **How can academic library consortia in South Africa exercise authority control as effectively and speedily as possible through a central structure?**

In order to understand the context in which a solution was selected for the research problem, the following questions were answered:

- What are the role and functions of a union catalogue in an academic library consortium?
- What is the cost of authority control in South Africa?
- Within which kind of structure can authority control in an academic library consortium with a union catalogue be performed effectively and speedily?

As background to these subproblems, the development of academic library consortia and the principles of authority control was considered and will be discussed next.

8.2 FINDINGS AND CONCLUSIONS WITH REGARD TO THE BACKGROUND STUDIES

The development of academic library consortia and the principles of authority control was considered and will be discussed next.

8.2.1 The development of academic library consortia

It was learned that technology plays an important role in the establishment of consortia. In the 1960s and 1970s the development of library consortia gained impetus in the United States. This was motivated by the advent of the computer and the increased automation of libraries (Bostick & Dugan 2001: 128). Question Two of the Questionnaire (Paragraph 6.3.1.2) confirms that technology plays an important role in consortia in the United States. Ninety-one out of 101 libraries use a bibliographic utility. In South Africa, technology and funding for technology played a major role in the formation of at least two consortia, GAELIC and FRELICO.

Although different forms and sizes for consortia exist, there is no single best form of model for a library consortium. The Questionnaire (Question 17, Section 6.3.2.3) indicated that large consortia may become cumbersome and that fewer than 20 members seem ideal. Library consortia fall mainly into the following categories: libraries of the same type, libraries interested in the same subject field, and libraries in close location. Question 16 (Section 6.3.2.2) indicated that libraries in the United States were often part of several consortia. However, this has thus far not occurred in South Africa. It would not be recommended as a solution for the South African situation, because different kinds of libraries have different authority control needs.

The empirical study showed that the respondents from the United States rated the following as essential characteristics of successful consortia:

- automated library systems
- a governance structure
- policies
- a common purpose

Automated databases with cataloguing facilities and a union database are considered to be at the heart of co-operation activities. Ensuring that consortium members have access to each other's holdings allows interlending and collection development. A governance structure for the consortium defining the roles of the leaders, committees and governing boards allows members to work together harmoniously. A policy that governs the operations of the consortium is imperative.

The concept of community and common purpose is a characteristic of successful consortia, and equality among participants facilitates co-operative efforts. Successful consortia have assessment criteria, or have plans to assess the outcomes of their ventures. These characteristics will be applied to evaluate the central structure.

8.2.2 The principles of authority control

During the background study, authority control was outlined as a technical process performed on access points in the library catalogue to facilitate searching. Experienced staff create authority records to guide users in their search for information. Authority control consists of the formation of uniform access points and a record-keeping function that records uniform access points for further use.

It was determined that in comparison with other library activities such as bibliographic description, authority control in South Africa is still in its infancy. Problems such as short-sightedness on the part of library managers, the lack of an authority format in SAMARC, lack of cohesion, lack of access to the authority file of the South African National Bibliography, and changes in cataloguing rules have resulted in a backlog of authority work in most South African academic libraries.

The three ways of performing authority control were identified:

- in-house creation and maintenance of authority files – a very expensive option
- using authority records available on bibliographic utilities
- outsourcing authority control to external contractors or vendors – not viable for South African libraries. Because there are no vendors in South Africa, libraries are forced to use vendors in the United States or Europe.

The best option seems to be the re-use of authority records that are available on bibliographic utilities as far as possible, and when a new authority record is created, it must be made available for use by other libraries.

The findings and conclusions for each of the secondary problems follow:

8.3 FINDINGS AND CONCLUSIONS WITH REGARD TO SECONDARY PROBLEMS

The findings listed below have been drawn from the information contained in the preceding chapters. Findings are summarised to avoid unnecessary repetition of the content of these chapters.

8.3.1 Role and functions of a union catalogue

A union or virtual union catalogue is a current, comprehensive compilation of catalogue entries with the primary function to indicate the resources of two or more libraries. Findings with regard to union or virtual union catalogues are:

- **Technology** has had a major impact on the creation of union catalogues.
- **The main function of the union catalogue** is to locate publications and facilitate access to information.
- **Z39.50** is an information retrieval protocol specifying the data structures and interchange rules that make it possible for a client to search remote databases. Z39.50 is not visible to the user but provides a consistent view of different databases through the user's own system interface. As far as the user is concerned, he is simply searching a single large database on his own library system. In this age of rapid development in the field of computer science, Z39.50 gives the user the ability to search multiple databases without needing to study the search language and display options of each of the different systems. Most respondents (61%) make use of the technology (Section 6.3.3.3).

Based on these findings, the following conclusions can be drawn:

- It is not necessary to send records to a central point to be assembled in a union catalogue, because of advances in technology. A user interface such as Z39.50 offers integrated access to multiple catalogues to form a virtual union catalogue.

Although each catalogue remains a distinct entity in a virtual catalogue, the user is able to access it as a single resource. A distributed virtual catalogue eliminates redundant record storage as well as the expense of loading and maintaining access to a central catalogue. A virtual catalogue makes sense in an environment where different libraries have their own databases and library systems, as confirmed by Question 26 (Section 6.3.3.2) of the Questionnaire. Fifty six percent of the respondents reported using a virtual union catalogue.

- Without a union catalogue, library functions such as interlending, the co-ordination of acquisitions and collection development would be difficult.

The conclusion is that a union or virtual union catalogue can ensure effective authority control within an academic library consortium, because authority records created by one member library, can be downloaded by all the member libraries. An aspect that is not addressed by using a union catalogue is libraries without the staff and expertise to create authority records. If they need an authority record, and it is not created yet, there must be an avenue through which they can create the record, or ask another library to create the record for them. A body who can co-ordinate authority control within a consortium is necessary.

It is also necessary to determine the cost of authority control in South Africa.

8.3.2 The cost of authority control in South Africa

The actual cost of authority control in an academic library in South Africa was determined. The following was found:

- It costs an academic library an average of R29.00 to create a new authority record and R20.57 to change an authority record on OCLC.
- The average time for creating an authority record on OCLC is 19.4 minutes. The average time for the three tasks in the process of creating a new record on OCLC are: research – 9.3 minutes; creating the record – 7.3 minutes; and housekeeping – 2.8 minutes.
- The average time for changing an authority record on OCLC is 13 minutes. The average time for the three tasks in the process of changing an authority record on OCLC are: research – 5.3 minutes; changing the record – 4.5 minutes; and housekeeping – 3.2 minutes.

- It takes an average of 19.3 minutes to create an authority record on OCLC, an international bibliographic utility. The average time to create an authority record on an in-house library system is 4.6 minutes.
- Authority records created on OCLC contained an average of 1.2 references, whilst records on in-house library systems contained an average of 0.7 references.

Based on these findings, the following conclusions can be drawn:

- It is cheaper to change an existing record than to create a new record.
- Due to the costs involved in creating and changing authority records, it is important that authority records that are created and changed are made available to as many institutions as possible through a union catalogue.
- The research required to identify all the different forms of the name and determining the most commonly used name is the most time consuming and expensive part of creating a new authority record in South Africa. This compares favourably with the study carried out at Indiana University, where the time taken to create an authority record was 19.1 minutes – 5.61 minutes was spent on research, 6.66 minutes on creating the record, and 0.66 minutes on housekeeping tasks.
- Doing research to identify all the different forms of the name and to determine the commonly used name is the most time consuming and expensive part when changing an authority record.

Based on the above, the conclusion was reached that central authority control within an academic library consortium is desirable, because it seems as if standards are relaxed when authority records are created on in-house library systems.

8.3.3 The structure for effective authority control

Due to the costs involved in the creation of authority records, it is important that authority records be distributed as widely as possible. A union or virtual union catalogue ensures effective authority control within an academic library consortium, because authority records created by one member library, can be downloaded by all the member libraries. An important aspect that is not addressed by using a union catalogue is libraries without the staff and expertise to create authority records. If they need an authority record, and it is not created yet, there must be an avenue through which they can create the record, or ask another library to create the record for them. A body who can co-ordinate authority control

within a consortium is necessary to solve this problem.

The following important aspects were identified:

- acceptance of the idea of a central structure
- the organisational structure
- the union catalogue
- objectives of the body
- programme plans
- financial support
- formal agreements

8.3.3.1 Acceptance of the idea of a central structure

The idea of a central structure must be accepted by all the consortium members. Potential members must have a firm basis for deciding whether to continue the idea before starting with detailed planning. The acceptance of the idea of a central structure must be based on:

- potential users who feel they could achieve levels of authority control and efficiency that they could not achieve in their own library
- potential users who are willing to commit the required financial and moral support on a continuing basis.

8.3.3.2 The organisational structure

A body that can co-ordinate authority control within a consortium will need a well-defined structure, although it may not have a choice about the structure. It may have to work within the existing framework of the consortium. If there is a work group responsible for cataloguing, it would be the ideal place, because cataloguers will be responsible for the work, or using the services of the body.

8.3.3.3 The union catalogue

A union or virtual union catalogue fulfills the function of providing access to materials of all consortium members. The body must take responsibility for compilation and maintenance of the union catalogue. Union catalogues works towards the goal of effective authority

control, because authority records created by one library, are available to other libraries within the consortium through the union catalogue.

8.3.3.4 Objectives of the body

The organisation and tasks of the body will depend on well defined objectives. The objectives should allow for increased co-operation in authority control through the sharing of knowledge and experience. The maintenance of the union catalogue should also be mentioned. The objectives are the framework that guides the activities of the body.

8.3.3.5 Programme plans

The programme plans should provide a description of the central body. These plans must result in methods of sharing resources on a systematic basis, and on ways otherwise not possible. Activities should also be chosen on the basis of:

- needs
- resources
- constraints

8.3.3.6 Financial support

The financial support needed to accomplish the objectives should be determined. It is also necessary to determine the funding source. A combination of dues and fees can be used. The body may not have a say or choice with regard to financial matters. It may have to work within the existing framework of the consortium.

8.3.3.7 Formal agreements

It would be important to select a written agreement to create a viable framework within which a central body can function. It should list the activities in which the libraries have agreed to participate. Gerryts and De Bruin (cited in Hooper 1989: 125-126) (Section 1.3) recommended formal agreements between participants to ensure that individual and joint responsibilities are spelt out.

8.4 RECOMMENDATIONS

Based on preceding conclusions, it is recommended that a Central Office for Authority Control within an academic library consortium be established. A union or virtual union (a virtual union catalogue seems a more suitable option) catalogue will benefit all the members of the consortium, but it is not enough. Libraries without the staff and expertise to create new authority records will be limited to the use of records already available. Libraries with the necessary expertise could create authority records for libraries without expertise and be compensated for each record created or changed.

The development of the Central Office for Authority Control should go through definite phases and steps. It should be based on the findings as discussed in Section 8.3.3.

The exploratory or initial phase can be divided into four steps. The development of any new service arises from an idea, which is the first step. During the next two steps, the persons with the idea need to generate interest and support from consortium members for the idea. The person then sells the idea and arranges meetings where the idea is discussed. At the end of the exploratory phase, consortium members should have enough information to enable them to decide whether it would be feasible to continue developing the Central Office for Authority Control. Once it has been decided that the Central Office for Authority Control is viable, the planning phase can begin.

During the planning phase objectives are defined, organisational structures are set up, programme plans are developed, a budget is drawn up, and written and/or legal arrangements are discussed. Closely related to the problem of determining the amount of financial support needed, is determining the funding source. There are two major types of funding:

- internal funding from consortium members
- external funds from non-consortium sources, such as Foundations.

In this phase, an overall strategy for the establishment of the Central Office for Authority Control is developed and the functions to be carried out are determined. In the development phase, procedures as to how the Office will function are determined. This includes the development of:

- policies to guide ongoing functions
- reporting procedures
- methods for evaluation.

Once the Central Office for Authority Control has been developed, it has to be implemented and evaluated. The implementation procedure involves a series of steps to ensure the eventual successful implementation of the Office. The process of implementation begins with a trial phase, the results of which are evaluated and used to modify procedures etc. of the Office. Once adjustments are made, the modified Office can be implemented.

8.5 RECOMMENDATIONS FOR FURTHER STUDY

Recommendations for further research arising from this study include:

- A detailed and extended cost analysis of authority control in South Africa. The study is not conclusive because no information on uniform titles and subject headings were received.
- Consortium participation: Why are libraries members of more than one consortium? What are the benefits and what are the problems?
- Expanding the services of the Central Office for Authority Control: Can it be expanded to the Central Office for Cataloguing Processes to include all cataloguing processes?
- A methodology for the evaluation of co-operative activities. Managers have only limited awareness of the cost-effectiveness of various co-operative programmes. There is a need for comparative analysis of carrying out tasks as individual institutions and undertaking these as part of a consortium.
- Authority control on the Internet.

Given the important role of authority control within the library catalogue, the challenge is to implement the Central Office for Authority Control in a consortium to share expertise and resources locally and internationally through NACO participation and to lower the cost of authority control.

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APPENDIX A: UNIT COST CALCULATION INSTRUCTIONS

UNIT COST CALCULATION INSTRUCTIONS

PLEASE NOTE

- All information will be treated confidentially
- The institution's name will not be revealed
- Identify each person in order to keep all the forms together. Identification can either be: 1, A or a pseudonym
- Complete a form for each authority record created or changed
- The more data received, the better. Pay special attention to authority control. The researcher needs the completed forms back during the last week of **MAY 2002**
- Post or fax the forms back to: Hester Marais
  Unisa Library
  SP2-15
  P O Box 392
  PRETORIA
  0003

- Contact me if you need any assistance:
  Tel: (012) 429-3187 (w)
  (012) 343-5818 (h)
  Fax: (012) 429-2925 / 429-3489 (mark: Attention: Hester Marais)
  E-mail: maraih@unisa.ac.za

1. SALARY INFORMATION

This needs to be calculated only once. You can use your monthly pay slip for your institution's contribution to your pension and medical aid.

2. WORKING DAYS

- Indicate the working days' leave that you receive each year
- There are 9 public holidays on working days in 2002. If your institution is **NOT CLOSED** between Christmas and New Year, change 9 to 12
- An average of 10 day's sick leave a year will be used.

3. TOTAL WORKING HOURS A DAY

Indicate how many hours your work each day. If you are working a full day, deduct your official lunch hour.

4, 5, 6 INDICATE YOUR CHOICE IN THE BLOCKS WITH A ✓.

7. TIME NEEDED TO DO EACH AUTHORITY RECORD

Indicate the time it takes you to do each step of authority control.

- **Research** which includes:

- Inspecting an author's works available in the library to determine if different forms of the name are used, such as pseudonyms or name changes.
- Identifying all the different forms of the name.
- Searching databases to determine the name commonly used and to identify other authors with the same name.
- Consulting reference sources to resolve conflict, if required.
- Taking a preliminary decision on the authoritative form.

- **Creating an authority record** includes:

- Confirming the establishment of the authoritative form of the name by using it as the 1XX in the authority record.
- Making 4XX references from the unused forms of the name to the used form.

- Making 5XX references to link related headings.
- Completing the authority record, as required by international policies.
- Exercising quality control on the new record.
- Saving the record in the database.
- If already available in a union catalogue or bibliographic utility, downloading the existing authority record onto the local system.

- **Housekeeping** is a term used to describe clerical and clean-up tasks resulting from the creation of the record and includes:

- Inserting the new heading in bibliographic records.
- Removing duplicate forms from the author, title or subject index.
- Keeping statistics.

8. INDICATE THE NUMBER OF REFERENCES IN EACH RECORD

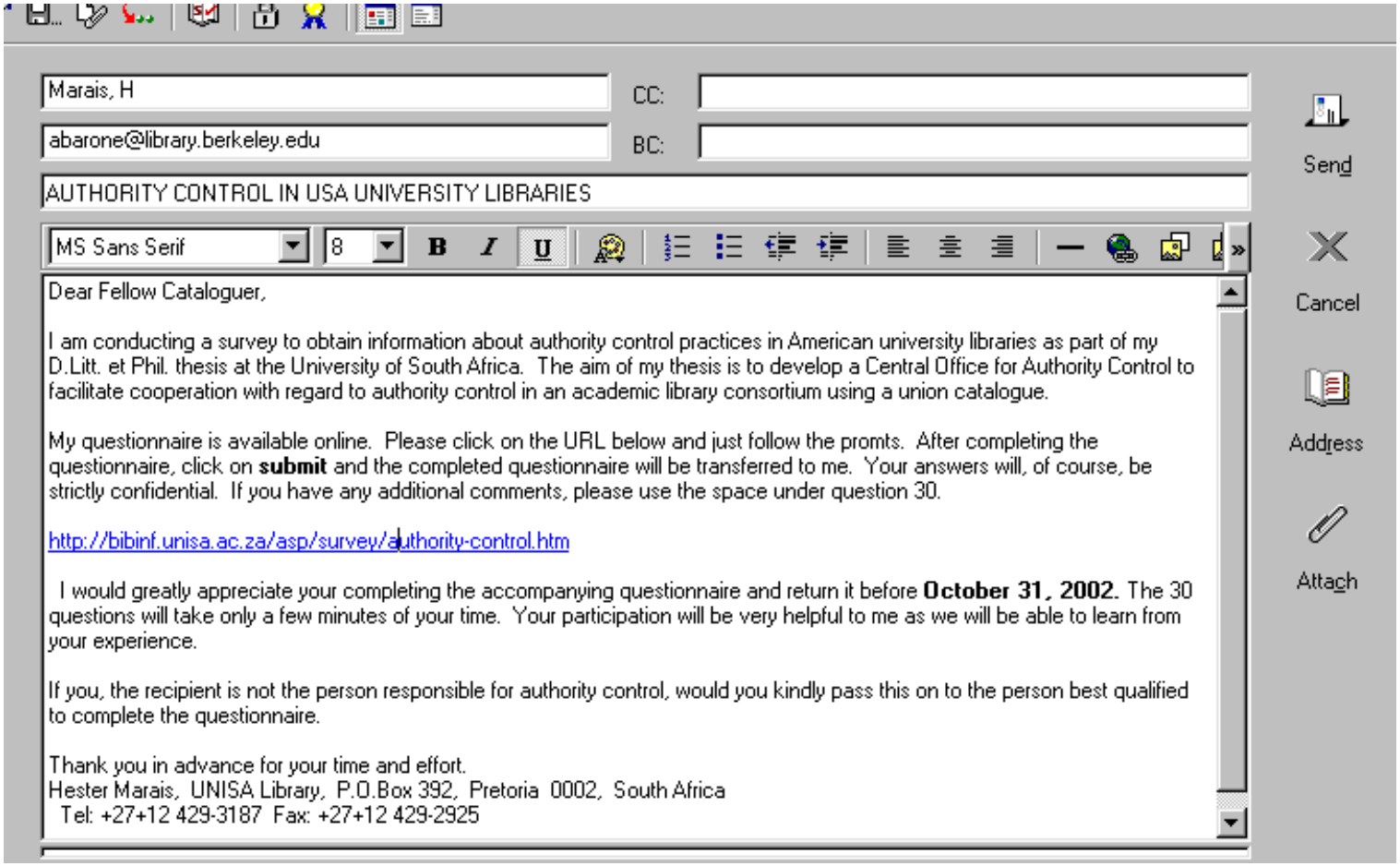
9. COMMENTS

Any additional information or explanation on the specific authority record, for example: housekeeping took so long, because there were three authors' works under one heading.

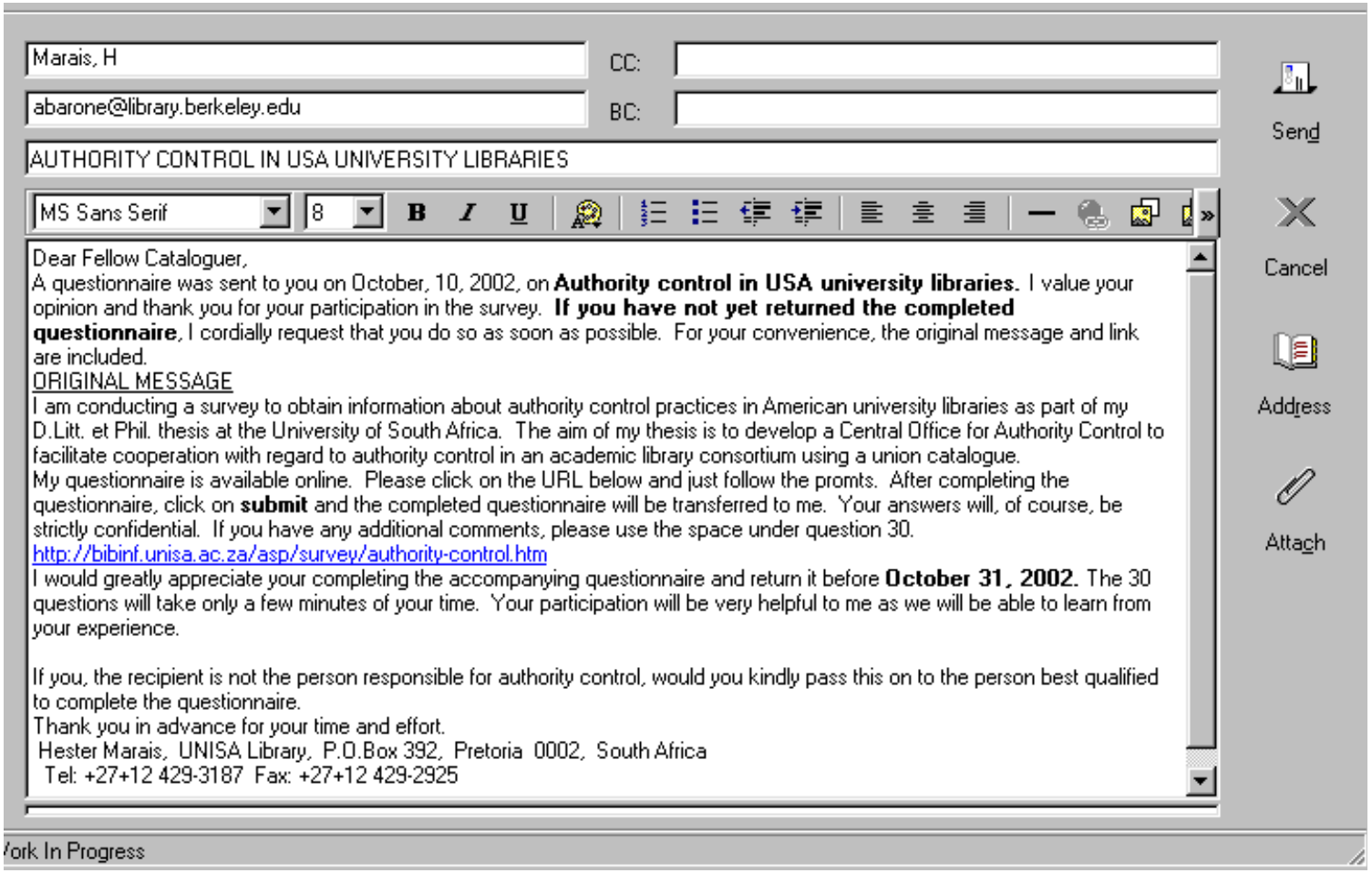
APPENDIX B: UNIT COST CALCULATIONS DATA COLLECTION SHEET

UNIT COST CALCULATIONS DATA COLLECTION SHEET		
INSTITUTION: ..... **PERSON: .....** Please indicate your choice in the blocks with a ✓.		
1.	SALARY INFORMATION	
	Annual salary	R
	+ annual pension	R
	+ annual medical	R
	Total	**R**
2.	WORKING DAYS	
	Public holidays in 2002 (9 working days)	9
	Leave per annum (working days only)	
	Sick leave (10 day average will be used)	10
3.	WORKING HOURS PER DAY	
	Minus: lunch time if applicable	
WORK DONE ON AUTHORITY FILE		
4.	DID YOU:	
	create the record or	
	change an existing record?	
5.	DID YOU WORK ON:	
	in-house system	
	OCLC	
	consortium union catalogue?	
6.	AUTHORITY RECORD IS FOR:	
	personal name	
	corporate body	
	series	
	uniform **title** or	
	subject heading?	
7.	TIME NEEDED TO DO EACH AUTHORITY RECORD:	
	Research	minutes
	Create / change record	minutes
	Housekeeping	minutes
	Total	minutes
8.	Total **number of references** in authority record	
9.	Comments:	
.....		
.....		

APPENDIX C: INTRODUCTORY E-MAIL ACCOMPANYING THE QUESTIONNAIRE



APPENDIX D: FOLLOW-UP E-MAIL RE QUESTIONNAIRE



APPENDIX E: HOW IS AUTHORITY CONTROL CARRIED OUT IN AMERICAN ACADEMIC LIBRARIES - A QUESTIONNAIRE

HOW IS AUTHORITY CONTROL CARRIED OUT IN AMERICAN ACADEMIC LIBRARIES?

NAME OF INSTITUTION: ..... NAME OF CONSORTIUM: (if applicable) .....

A. AUTHORITY CONTROL

1. How many cataloguers in your library do authority control?

1 - 5	
6 - 10	
11 - 15	
more than 15	

2. Please indicate what tasks your cataloguers are performing with regard to authority control.
(Please mark one option)

download authority records from other sources	
create new authority records	
download and create authority records	
other, please specify:	

3. Does your library use a bibliographic utility?

yes	no

If **YES**, please proceed to question **4**.
If **NO**, please proceed to question **5**.

4. What bibliographic utility are you using?

OCLC	
RLIN	
WLN	
other, please specify:	

5. Is your library a NACO participant?

yes	no

6. Please explain your library's reason for participating or not participating:

.....

.....

.....

7. Approximately how many authority records does your library create in a year?

less than 100	100 -499	500 - 999	1000 -1499	1500 -1999	2000 -2499	more than 2500

8. Do your library participates in SACO?

yes	no

9. Approximately how many subject headings does your library submit in a year?

less than 10	11 - 19	20 - 29	30 - 40	more than 40

10. Has your library ever outsourced authority control?

yes	no

If **YES**, please proceed to question **11.**
If **NO**, please proceed to question **15.**

11. Please explain the reasons for outsourcing authority control:

.....

.....

.....

12. How often do you receive authority records from the vendor?

daily	weekly	monthly	annually	
other	please indicate:			
.....				

13. Do you do quality control on the outsourced records?

yes	no

14. Do you add references and /or notes to the outsourced records?

yes	no

B. LIBRARY CONSORTIA
(Please complete if your library is part of a consortium)

15. When was the consortium founded?

not part of consortium	before 1970	1971-1979	1980-1989	1990-1999	after 2000

If **not part of consortium**, please proceed to question **25.**

16. Which of the following best describes your consortium?
(Please mark one appropriate block)

most libraries are of the same type (eg. academic)	
most libraries are interested in the same subject (eg. law libraries)	
most libraries require the same kind of service facility (eg. Innopac library system users)	
other, please explain:	

17. How many libraries are in the consortium?

1 - 5	6 - 10	11 - 15	16 - 20	more than 20

18. Does your consortium share an automated library system with cataloguing facilities?

yes	no

19. Does your consortium attract funding from non-consortium sources such as the Mellon Foundation, etc?

yes	no

20. Does your consortium have a governance structure?

yes	no

If **YES**, please procede to question **21**.
If **NO**, please procede to question **22**.

21. How many permanent employees does the government structure consist of?

1 - 2	3 - 5	more than 5

22. Does your consortium have a written policy with reference to members' obligations, financial commitments, etc?

yes	no

23. Does your consortium have assessment criteria that are applied to evaluate its ventures and programmes regularly?

yes	no

24. Is your consortium a member of the International Coalition of Library Consortia (ICOLC)?

yes	no

C. UNION CATALOGUES

25. Does your library have a union catalogue?

yes	no

If **YES**, please procede to question **26**.
If **NO**, please procede to question **28**.

26. Is the union catalogue .....
(Please mark one appropriate block)

centralised	
virtual catalogue	
other, please explain:	

27. Does your union catalogue give access to other catalogues via Z39.50?

yes	no

D. LIBRARY COOPERATION

28. Personnel approach, personal characteristics and attitudes are important factors in library cooperation.
(Which of the following do you perceive in your library?)

	yes	no
positive and supportive		
complacency		
custodial mentality of librarians		
jealousy and stubbornness		
inertia and indifference		
assumption that the organisation is unique		
difficult personalities		
fear of loss of autonomy		
disinclination to experiment		
mistrust between libraries and librarians		
unwilling to accept change and/or additional workload		

29. Which cooperative activities does your library support?

	yes	no
collection development (eg. libraries in close proximity collaborate to limit duplication in periodical subscription and cancellation)		
interlibrary loans		
bibliographic cooperation (eg. use of union catalogues and integrated library systems)		
shared expertise and information on library management level (eg. formal meetings of library heads to prepare a document to vendors regarding periodical subscriptions)		
cooperation in library automation (eg. joint ventures in research and purchase of a library system)		
international cooperation (eg. by having formal/informal relations and contacts with libraries in other countries)		

E. GENERAL

30. Comments:

.....

.....

.....

.....

.....

.....