

CHAPTER ONE: BACKGROUND TO THE STUDY

1.0 Introduction

Academic libraries are struggling with diminishing funds for acquisition of library resources. The price of books continues to rise, forcing many libraries to reduce or completely cancel subscriptions (Osborne, 1981) as cited in (Ogunrombi, 1997:34). According to the University of Zambia (UNZA) annual report (2005), the University of Zambia Library is not spared from the challenges with regard to funds to procure periodicals and other information resources. (Simui and Kanyengo, 2001 and Simui, 2004) echoed these concerns. The financial difficulties faced by academic libraries may render their role in institutions of higher learning irrelevant, as in most cases, they do not meet the information needs of both the faculty staff and researchers in their respective fields. Although the financial difficulties are directly faced by libraries, the impact trickles to the end users who happen to be (lecturers and students in general) hence, affecting the quality of learning and research output produced in academic institutions.

Journals play a vital role in disseminating research findings and measurement of research output besides information communication technologies (ICTs). (Garret 2005, Aina and Mabawonku, 1996) acknowledge that journals constitute a platform on which latest research findings are reported. Omekwu and Opeke (2002), and (Musa ,2005) summarize the importance of scholarly journals as a major medium for reporting research findings due to their publication frequency unlike monographs (books). Further, periodicals disseminate information of both completed and ongoing research. Importantly, journals provide information that is fundamental for conducting research evaluation. Not only do journals provide a platform on which the research output and impact of individual authors, institutions or countries contributions are measured, but they are also subjects of evaluation. Similarly, Onyanha (2008) observes that, there are as "many reasons for evaluating journals as there are different groups of scholars interested in information production, storage, dissemination and use". Amongst these include researchers, librarians, electronic database publishers, journal editors, information brokers, and university research councils. Iheaturu (2002) notes that libraries acquire periodicals for the purpose of teaching, learning, and research. Further, periodicals disseminate information of both completed and ongoing research. Researchers in academic institutions require various information resources in writing their dissertations. Therefore, information professionals must have a good understanding of user's information needs and information resources used by researchers in order to provide the required resources, promote and encourage usage of library services.

Furthermore, acquisition of essential information resources may lead to maximum utilization of library stocks and help researchers to produce quality research papers. This can be achieved if librarians take keen interest in understanding their patron's information seeking behaviour and evaluate resource usage to be knowledgeable of which section of the library actively contribute to the production of research output in various disciplines.

Luther, (2008), cited in (Iivonen et al, 2009). State that, an essential part of university libraries' everyday life is analyzing their function and impact. Librarians must be able to show that researchers use the resources provided to them in the best possible way, and that library funding benefits the university's research, teaching and studying. University administrators expect to get a return on investment in university libraries because, most of the libraries budget is spent on resource acquisition. Therefore, resources in the library's collections should be reflected in the bibliographical references cited in student's dissertations undertake in the university's faculties.

Dissertations are useful objects of research in finding out the library's contribution to researcher's information needs, as they represent both the university's research and study. Buttlar (1999) cited in (Iivonen, et al, 2009) remarks that the doctoral dissertation is evidence of the author's ability to carry out scientific research, and the citations reflect their familiarity with the discipline. Therefore the citations in dissertations reveal what resources are needed and used in conducting research.

1.1 Collection Evaluation

In librarianship, resource usage is an important component of the library's functionality. Access to required information resources promotes research and development such that, it is important to understand library user's pertinent information needs in order to provide user based resources. Lockett (1999) as cited in Ching and Chennupati (2002:398) classified techniques in collection evaluation into two types. The first technique is collection centred. This focuses on the collection's size, scope and value. The second technique is that which is client centred and focuses on user satisfaction with the library's collection. It is with this regard that Longstaff and Van Kampen (2008) consider collection evaluation as a core task in libraries, if librarians are to provide the services that meets the needs of the users and support the academic activities of the parent institution. According to Buchanan and Herubel (1994), regular in-house collection evaluation enhances the management of resources in any research libraries for both short and long term development. Agee (2005) emphasizes that a well-managed collection evaluation can reveal gaps in the library's collection and creates awareness on whether the resources provided by the library are relevant to user's information needs.

It is therefore, apparent that in institutions where budgetary allocation for information resource acquisition is always deteriorating, resource evaluation is cardinal if libraries are to provide demand driven services.

Borin and Yi (2008) stress that, with the development in ICTs, library information resources are passing through a transition phase: from print only model to a hybrid model. Thus, the changing pattern of library information resources from paper based to electronic based makes it even more important for librarians to assess the library's collection and become knowledgeable of what user's preferences are. Abels (2002) also observed that, the use of internet has increased since 1998. This development might have a negative impact on print resource (especially periodicals) usage. Hence, the need for librarians to be knowledgeable of the preferred format users and potential users are likely to demand in order to provide information resources and services suitable to their needs.

Ching and Chennupati (2002:398) argue that knowing how and which library collection or information resource is being utilized is useful for establishing user based acquisition policy. This observation is valid especially if related to institutions with inconsistent budget for information resource acquisition. In this era of declining library budgets, it is critical that, those whom resources are provided for utilize them. To contribute positively to the development of societies they serve, librarians in institutions of higher learning must take a keen interest in monitoring the way information resources are being utilized or benefiting the intended users in order to justify their continued subscription.

Said (2006) in the study collection development and long term periodical use, reports that, provision of scientific and technological research information is critical in supporting the needs of researchers in institutions of higher learning. In order for academic libraries to be cost effective, librarians must provide information resources and services acceptable by all users. It must be appreciated here that, library resources whether print or electronic are expensive such that for a library to continue subscribing to particular information resource, an indication of their usefulness is paramount. Libraries in institutions of higher learning can firmly position themselves and make their existence in the institutions to which they are a part relevant to both students and faculties through periodic evaluation of its services.

The need to account for the strength of a library's collection calls for librarians to measure the value of the library services by means of knowing how the targeted library audience benefit from using a given library facility. One of the method that can help librarians understand libraries' collection utilization is through tracing what users cite.

Thus, citation analysis could help librarians direct the acquisition of library resources on actual usage of resources not assumptions. Kabamba (1988) strengthens this point further by stating that, success or failure of the library does largely depend on library managers' ability to identify the weaknesses and strength of the library system. Therefore, librarians in institutions of higher learning must take a keen interest in monitoring and identifying the types of information resources utilized by its intended users through resource usage research.

1.2 The genesis of user studies

The development of user studies is associated to two International Conferences held in London in 1948 and Washington Conference ten years later in 1958 (Devarajan,1995). This development was because of the growth in science and technology following Second World War. However, the turning point in the history of user studies was the establishment of the Centre for Research on user studies (CRUS) by the British Library Research and Development at the University of Sheffield towards the end of 1975. The CRUS served as a focal point for research in user studies with the intention to improving the utility of user studies through the provision of expertise in research methods to other researchers (Devarajan, 1995).

1.2.1 Impact of User Studies

A number of benefits emanating from user studies research have been acknowledged the literature cited in this report. However, among other things, it is important to state here that resource usage studies directly play a significant role in rejuvenating library services in the areas of: library collection development, resource allocation, improved library techniques, and the provision of user based information services. In support of these assumptions, Tenopir (2003) stresses that, studies in information resource usage are important in that, results may implore library decision makers to make decisions based on usage patterns, furthermore, data derived from user studies can also serve as a basis for establishing new, or discontinue those services viewed as irrelevant to user's needs.

Users are a very important component and play a central role in the collection building of any library such that a library collection should be in line with user's information needs if users are to appreciate the resources the library provides. Thus, in university libraries, as alluded to in the literature, the collection should support the activities of all the faculties in an institution, and match with new developments in the area of research and development. User's interest could be identified through regular assessment and evaluation of user's publications to identify the type of resources user cite in their publications.

It is worth to note that, library user's interest has a direct bearing on allocation of resources in a library. As such, budget allocation, and format of information resources acquisition should have a bearing on user's interest.

Tucker (1980) as cited in (Gakobo, 1985:414) argue that, "the library is part of an academic pattern in its own institution and cannot expect to choose freely what subjects it will wish to develop". Fiscal adequacy of any library is qualitatively measured in relation to users' requirements. Common sense would dictate that standards that are applied arbitrarily and artificially would not win support from funds granting authorities; instead, budget justifying must rest upon a firm foundation directly related to the requirements of the library's clientele. It is for this reason that for an objective allocation of library resources, users' preferences must take precedence.

Riahinia (2010) also acknowledges challenges faced by university libraries concerning limited budgets such that knowledge on how users utilize the available information resources is vital. In order to be cost effective, and to serve the users effectively, librarians need to be knowledgeable of the user's preference and appreciate their favoured formats. The best method of getting information of the active collection in any given library is through citation analysis. A number of researchers have used citation analysis to understand postgraduate student's information seeking behaviour and determine their journal needs (McCain and Bobick, 1981; Momoh 1996).

1.3 Library resources usage

Borin and Yi (2008) grouped usage of the collection into three levels: The first level focuses at access (how the user accesses the collection), the second focuses at user's interest in using what they have accessed, and the third level focuses on the evidence that users actually used the information resources. Paisley (1968) acknowledges that, the range of information resources available in a library, the use to which information resources is put, the user's professional background, motivation, and the consequences for using or not using particular information channel has a consequence on how users would perceive the value of a give resource.

The objective of any library system is to satisfy the information needs of its users. This study's focus was on the extent to which masters' education students in writing their dissertations at the University of Zambia during the period 2000 to 2010 cited periodicals. The study thus, used evidence-based investigation to gain knowledge on the type of resources graduate students in the School of Education cited in their dissertations during the period under review.

1.4 Statement of the Problem

According to the University of Zambia Annual report (2005), the mission of the University of Zambia is to meet the needs of individuals and society through excellence in teaching, learning, research, and service provision in order to foster sustainable human development and culture of peace. Gakobo's (1985:405) statement that, "the objectives of university libraries are to support teaching, learning and research activities of the parent institutions, through systematic acquisition, and organization of all forms of explicit and tacit information in fields pertinent to the goals of the parent institution, and make such resources available to the users engaged in knowledge creation" supports the above mission statement.

In order to support the University of Zambia's Mission statement, the University of Zambia Library is mandated to provide acceptable information resources to its users, and create an environment that is conducive to sustain the university's core business. To accomplish its mandate, the Library does provide a variety of information resources such as books, reference sources, research reports, theses/ dissertations, and periodicals. According to the University of Zambia Library Technical Service Division's list of current periodicals (2010), UNZA Main Library stocks 2,466 journal titles. Based on this figure, one may argue that, maintenance of the periodicals collection in the University of Zambia Library is justified by the resources' relevancy to the University's faculty programmes. To supplement print periodicals, the University of Zambia Library has been since the year 2000 through assistance from its cooperating partners. Such as; the International Network for the Availability of Scientific Publications (INASP), Health Internetwork Access to Research Initiative (HINARI), Programme for the Enhancement of Research Information (PERI), and Zambia Library Consortium (ZALICO) providing access to full text electronic journals in agriculture sciences, veterinary medicine, law, mining, education, engineering, natural sciences, social sciences and medicine (Akakandelwa, 2007). In addition, the Library provides electronic access to institutional repository to theses/dissertation at both masters' and PhD levels, as well as staff un-published papers.

However, despite the value attached to periodicals literature in institutions of higher learning, there is dearth of knowledge with regard to the extent education masters' students cite periodicals articles in writing their dissertations at the University of Zambia and what format of information resources masters' education students cite most in their dissertations. Based on this lack of knowledge, this study analyzed bibliographic references in the education masters' dissertations conferred at the University of Zambia from 2000- 2010 to establish which collection of the Library is actively contributing towards the writing of dissertations in the

faculty of education. As well as ascertain the extent to which periodicals were supporting education masters' students in their research, and give a feed back to UNZA Library Management with regard to which format of the Library's collection was actively contributing towards dissertation production in the education discipline with the aim of influencing UNZA Library Management to redirect the Library's acquisition policy to user's pertinent needs.

1.5 General objectives

The general objective of this study was to establish the type of information resources graduate students in the education discipline at the University of Zambia, cited most in writing their dissertations during the period 2000 to 2010.

1.5.1 Specific objectives

Were to:

1. Identify the most cited information resources in the masters' dissertations in the School of Education.
2. Determine the most cited journals in the education dissertation at the University of Zambia.
3. Examine the extent to which education masters' students in their dissertations cite journals from non-education discipline.
4. Ascertain the age of cited resources in masters' dissertations in the education discipline.
5. Establish most cited authorship type in the education dissertations at the University of Zambia.

1.5.2 Research questions

To meet the above objectives, the research sought to find answers to the following six questions which were formulated in line with the established research objectives:

1. What type of information resources do education masters' students cite in their dissertations?
2. What is the most cited format of information resources in the masters' dissertations in the School of Education?
3. Which are the most cited journals in the masters' dissertations in the field of education at UNZA?

4. To what extent are journals from non-education discipline cited in education masters' dissertations at UNZA?
5. What is the age of the cited information resources by masters' graduate students in the School of education at UNZA?
6. What is the most cited authorship type in the education dissertations submitted during the period under review?

1.6 Significance of the Study

The implications of the study were that the results might:

1. Help the University of Zambia Library management get an insight of the information needs of postgraduate students in the education discipline and become knowledgeable of which type of information sources are used by the students in writing their dissertations.
2. Generally, the results of the study may be of considerable use to other researchers in institutions of higher learning in Zambia on how to use unobtrusive techniques to detect library resource usage.
3. The study might reveal some pertinent resources that may be of importance to researchers in the education discipline at the University of Zambia that librarians might not be aware.
4. Assuming that the cited resources were sourced from the University of Zambia Library, the findings of the study might serve as a platform on which the library's strength in meeting researcher information needs can be accessed by identifying gaps or availability of the cited resources in the Library holdings.

1.7 Conceptual framework

Azar (2007) states that citing an article usually suggests that it contributes significantly to the literature of the citing author. Therefore, the assumption of this study was that: A number of citations an article receives indicate its relevancy, the cited information resources in student's dissertations were the most preferred in relation to the subject content of the citing document, the bibliographical references provided by authors in their dissertations were actually used, and the cited resources satisfy the citer's information needs in relation to their research topic.

1.8 Theoretical Framework

This study used Bradford law of scattering to compare the journal distribution in the dissertations under review to establish if the law of the core few applies. Scattering relates to Bradford's law, which states that, documents on a given subject are distributed according to certain mathematical function so that a growth in papers on a given subject requires a growth in the number of information sources. Bradford's law states that small core titles of journals have as many papers on a given subject as a much larger number of journals N , which again has as many papers on the subject as N^2 journals.

1.9 Operational definition of terms used

Cited resources

Cited resource refer to citations in the masters' dissertations analyzed in this study

Format

In this study format refers to conference papers, journals, manuscripts, monographs, newspapers, theses/dissertation, web resources and other resources cited in the dissertations under review.

Most cited journals

In this study, the most cited journals are those that were cited at least eight times during the period under review.

Periodicals

In this study, a periodical refers to print scholarly journals acquired by the University of Zambia Library and processed for use by the Library users. The term is interchangeably used as journals.

Zero age

Zero age refers to those resources whose publication dates were not indicated in the bibliographical references of the citing dissertation.

1.10 Summary

The chapter has provided a background to the study stressing the importance of journals in research, study and teaching; further, the chapter justified the importance for undertaking this study using citation analysis, and the benefits for using this technique in evaluating resources usage as well as highlighting some researches that have evaluated resource usage using citation analysis method. The chapter has also given the conceptual and theoretical framework that guided the study.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter presents the literature reviewed for the study. The aim of conducting a literature review was to get background information related to the topic under discussion and gain knowledge on how researchers conducted similar studies in the past. Literature review enabled the researcher gain knowledge in the field of user studies using citation analysis, including vocabulary, theories, key variables and methodologies applied by the experts prior to this research. Gall, Borg, and Gall (1996) states that literature review plays a role in delimiting the research problem, seeking new lines of inquiry, avoiding fruitless approaches, gaining methodological insights, identifying recommendations for further research, as well as seeking support for theories and major concepts in the area of study. The other rationale for conducting a literature review was to get a framework for relating new findings to previous findings in the discussions. Harter (1998) concur with these sentiments by stating that, without establishing the state of the previous research, it is impossible to establish how the new research advances the previous research.

2.1 Periodicals use studies in general

Walter (1996) observed that analysis of periodicals usage provide meaningful data that is useful in shaping a library's journal collection. University of California at Los Angeles (UCLA) Biomedical Library undertook a citation analysis of 2,552 periodicals subscription titles over a period of one year, gathering data on circulation, in-house use, and interlibrary loan (ILL) use to support the decision to cancel and determine whether there was a relationships between periodical in-house use and checkout. The findings revealed that, in-house usage was higher than checkouts across all subjects. Thus, journal usage studies has been conducted using one or more of the following indicators: number of articles, average number of articles, impact factor, citation age (age-weighted citation rate), cited journal half-life, co-citedness, consumption factor, importance index, influence weight, popularity factor, and the h-index.

Francis (2005) investigated information seeking behaviour of social science faculty at a University in West Indies. The study revealed that 84.6% of the respondents used journals for conducting research, 57.7% used conference proceedings, 53.8% conferences papers, newsletters and bulletins 38.5% respectively. On which sources they used in identifying retrospective information resources 84.6% of the respondents depended on journal citations, 80.8% depended on references from books, and 42.3% used indexes and abstracting tools. The study further revealed that, social scientists preferred journals articles in electronic format.

On the other hand, Al-Suqri's (2007) study on information seeking behaviour of the social science faculty at the Sultan Qaboos University in Oman indicated journals were the most frequently used format followed by monographs. Ajala's (1997) study of periodical literature use by the pre-final and final undergraduate students in Nigerian Universities, revealed that, of the 688 respondents, 70.5% used periodical literature at least once a week for writing seminar papers, term papers, final year projects, and class work assignments. On undergraduate use of periodical literature, 53% of the respondents acknowledged using periodical literature resources though the extent of usage was minimal because most of the periodicals were irrelevant to undergraduate information needs.

Naushad and Nisha's (2011) study on the use of e-journals among scholars at Central Science Library (CSL) at University of Delhi revealed that more than 60% of users, used e-journals for research. The study further revealed that, date of publication carried less weight among all options. Gupta's (2011) study on the usage pattern of both print and electronic journals at the Kurukshetra University in India, indicated respondent's preference to electronic journals than print journals. Further, the study revealed that, the respondents depended more on open source materials. The study concluded that the use of e-resources is increasing in developing countries such that studies on information resource utilization were required in order to be knowledgeable of the type of sources preferred by library users if libraries are to provide user based services.

A study conducted by Alema, et al (2000) on the use of African published journals (APJ) at University of Ghana Library (UGL) and University of Zambia Library, used mixed method. The findings of the study were that, although APJ were important for both teaching and research, they were not popular among academics. On the usage of journals in general other than African published journals, the study confirmed the importance of non-African journals to teaching and research as undisputable. 89% of academic staff at UGL and 73% those at University of Zambia (UNZA) placed importance of journals on ongoing and future research, 95% of staff at UGL and 78% of those at UNZA used periodicals articles for updating lecture notes, 80% of academic staff at UGL recommended journals for students reading, against 43% of staff at UNZA.

2.2. Significance of citation analysis method

Citation analysis techniques can be traced back to the works of Jewett in 1848 using references found in major scholarly works against the holdings of several American libraries (Ching and Chennupati, 2002:399). In addition to scholarly works as the source for citations, Lancaster (1993) recommended the analysis of readings and textbooks. Citation analysis in librarianship is

a type of in-house evaluation tool used in collection usage assessment. Unlike other methods of assessing library resource usage, citation analysis is evidence based because it points out what information resources are actually used. Chikate and Patil (2008) view citation analysis as a useful tool for understanding communication patterns, subject relationships, author effectiveness, publication trends, and popular resources in a given subject.

Buttlar (1999) view citation analysis as a method used to determine which resources library patrons in a given discipline use. Aina (2002) define citation analysis as research method that statistically analyzes references cited in a given publication to find the cited resources in a particular discipline. Thus, citation analysis is part of a broader field of bibliometrics which uses mathematical applications and statistical methods to determine information resources usage and publication pattern. Strohl (1999) define citation analysis as a technique of extracting bibliographical references from textbooks, journal articles, and student dissertations, and other information resources to gain knowledge of what proportion of a library's collection are used.

This study adopts Strohl's definition of citation analysis, as it is closer to the research's objectives. Borin and Yi (2008) evaluated academic library collection to assess an academic library collection through usage indicators as evidence based method. Citation analysis studies are usually used in a more focused study such as: a study of a particular resource cited, the most cited author, which subject area of a library collection is most used, which sources and formats are preferred, and in assessing the quality of a collection from usage point of view (Buttler,1999). Citation analysis thus, provides a researcher with an opportunity to evaluate and interpret bibliographical references received by articles, authors, formats of information sources, institutions, publishers and other indicators of scholarly activities. The technique also helps to understand researchers' information seeking behaviour and preferences.

Evaluating references cited in faculty's publications or students' assignments, research reports, and dissertations create awareness of the type of resources commonly used and appreciated by users in a given discipline (Curtis, 2005 as cited by Chikate, 2008). Hence, citation analysis helps librarians to shape their library's collection in line with user preferences. Supporting these views, Akakandelwa (2007) observed that citation analysis gives a true measurement on the use and relevancy of particular information resources in a library. By so doing, it contributes towards building a user based collection. Further citation analysis studies are important in that, they reveal other relevant resources in a given field, which the acquisition department in the library might not be aware. Therefore, by revealing the type of information resources most used by researchers in the education discipline in writing their dissertations at the University of Zambia, the study may help curb resource wastage by redirecting the Library's energy and

financial allocation on users' pertinent needs. To strengthen this point further, (Naudé, Rensleigh and Du Toit, 2005) agrees that citation analysis is a suitable method to use in a university library environment. In addition to being, an important part in the scholarly communications process, citations and the composition of bibliographies, reflects the information-seeking behaviour of users in any given discipline. Garfield (2008) in his work of science established the importance of citation analysis as a tool for evaluating library usage. He argued that citation frequencies and impact factor could be helpful in determining the optimum composition of a library's collection. Further citation counts can indirectly reveal the structure of a given knowledge as well as serve as a tool in the selection and evaluation of library resources. Results derived from citation analysis studies can serve as a guide to determine the retention schedules of information resources.

Okiy (2003) and Satarino (1978) note that citation analysis provides an indication of which materials authors used to support their efforts in intellectual inquiry. The assumption behind citation analysis is that the cited information resources in a given publication are the most preferred in relation to the subject content of the citing article. Leshner and Sylvia (1995) support this theory by stating that citation analysis of students' project and theses help in evaluating how a particular collection in a library satisfy user's information needs. This study however, argue that the cited resources might have been the most visible to researchers.

Comprehensive studies of social scientists' information needs however began with the American Psychological Association project between the years 1963 to 1969, and INFROSS study at Bath University in 1967. According to (Line,1971, Folster, 1995,and Slater, 1988) most of the studies that followed there after focused on large groups and used quantitative methods to investigate the reasons for seeking information, the type of information needed, preferences of the sources used, and problems faced while seeking information. Pettigrew, Fidel and Bruce cited by (Ingwersen, 2005) hypothesize that during the late 1980s, a shift skewed towards understanding the information seeking behaviour by employing holistic approaches (using qualitative methods to investigate small groups).

Dervin in 1986 presented information seeking behaviour model that had the elements of demand on systems and sources approach. Dervin's approach referred to the extent to which different formats of information sources, systems, or channels are used. Tenopir (2008) surveyed faculty members in the United States of America (USA), Finland, and Australia from 2004 to 2007 to find out reading patterns of electronic articles (e-articles) by academics in order to measure the value of e- reading and its effects to journal collection. Al-suqri (2007) noted

these developments, and explained how information seeking studies could be instrumental in designing appropriate information systems in Middle Eastern Universities.

Joswick and Stierman (1997) to determine the importance of local citation studies in collection development found significant differences between the ranking of journals used by students and faculty to the rankings provided in journal citation report (JCR).

2.3 Collection evaluation through citation analysis

Citation analysis is an unobtrusive research method that identifies core lists of information resources in a given discipline (Kuruppu and Moore, 2008, Sylvia, 1998). Also (Echezona, Okafor and Ukwoma, 2011) stressed that through citation analysis, librarians are able to identify core lists of resources or types of resources heavily utilized in any given discipline. The results from the analysis of citations in research paper or dissertations can guide librarians to base their acquisition policies on actual usage. The technique involves counting how many times a paper or a researcher is cited, assuming that influential scientists and important works are cited more often than others.

Smith (1981) noted that citation analysis is a tool for measuring library collection use. Lancaster (1993) stated, "Research productivity and impact is measured through an analysis of the number of publications produced and the quality of the sources in which the published materials appears." This implies that sources of citation are important in determining the quality of a work. Megnigbeto cited in Nkiko and Adetoro (2007) analysed citations of dissertations of library and information science students and discovered that the number of citations to online resources was very low. Tuñón and Brydges (2005) reported similar findings. Citation analysis is generally viewed in the literature as a form of checklist approach that compares a library's holdings to an authoritative list for assessing the most active collection in the library. Citations drawn from student's dissertations and term papers is another checklist used by most studies. The earliest being that of Emerson's analysis of twenty three engineering doctoral dissertations at Columbia University between 1950 to 1954 (Heidenwolf, 1994 as cited in Ching and Chennupati, 2002:399). Sylvia (1998) analysed the serials titles cited by the psychology students in their research to evaluate use of a journal collection for the purpose of journal selection or cancellation. Among the reasons suggested by librarians for embarking on a collection evaluation include improving collection development policies, reviewing performance of collectors, identifying the strengths and weaknesses of an entire or part of a collection, or identifying resources for weeding, storage and restocking (Ching and Chennupati, 2002:398).

It may be argued here that, regardless of the reasons for conducting a collection evaluation, the main objectives of any library's collection evaluation should be to provide a collection that is relevant to the needs of the library users. In order to determine the need to purchase specific back files, Nabe and Imre (2008) examined citations to resources dating after 1996. Lascar and Mendelssohn (2001) cited in Laura (2011) used citation analysis to examine references within biology faculty papers from several institutions. The study recommended for the inclusion of smaller periodicals within a collection's budget and studying faculty use of journals through determining where academics publish their articles.

Oduwole (2000) conducted a citation analysis of agricultural theses accepted at University of Agriculture Abeokata Nigeria. The study identified and grouped the various sources of information used by researchers into three classes namely:

- (1) Primary sources (periodicals, monographs, patents, trade literature, research reports, dissertations and theses).
- (2) Secondary sources (indexes and abstracts)
- (3) Tertiary sources (encyclopaedias, reviews, and dictionaries).

Oduwole's study further revealed that internet services were other means of communication used by researchers to disseminate their ideas, and access current and retrospective periodical literature. Williams and Fletcher (2006) investigated the type of resources cited by graduate students in engineering to direct collection development decisions and found that 38 percent of the citations were to journals, 19 percent were to conference papers, and 18 percent were to books, with books aging more slowly than other formats.

Results of a ten-year citation analysis study of masters' dissertations in Mazandaran University of Medical Sciences by Siamian (2007) recommended that medical libraries should plan for acquiring up to date English resources instead of Persian, and e-journals instead of print journals. The rationale behind such proposition was that English is the lingua franca and researchers communicate the new discoveries in English and disseminated to researchers the world over, electronically. Carlson's (2006) study of undergraduate student citation behaviour showed that the academic discipline has an effect on student's citation behaviour. Therefore, there is need to carefully review the citation behaviour of students in various fields in order to get accurate picture of faculties' citation pattern as whole. Analyzing citations to determine core resources in a specific discipline could help libraries to concentrate more efforts towards acquiring user-based resources. Budd (1988) analyzed citations in three core education journals

to determine how researcher disseminates knowledge within a discipline. Black (2001) collected citations of two leading journals to form a base for a core collection in communication disorders. Edwards (1999) in order to determine which journal titles polymer science and polymer engineering graduate students cited, both citation analysis and shelving counts were used. Gross and Gross (1927) analyzed the frequency of citations in the Journal of the American Chemical Society to ascertain which journals were needed most in preparing students for advanced study and to support the stimulation and intellectual development of the faculty.

Zandian and Hassanzadeh (2007) citation analysis study of the PhD Arts and Humanities dissertations submitted in Tarbiat Modares University during 2001-2006, reported periodicals citations at 96%. The researchers concluded that academic disciplines are effective source of study of student's citation behaviour. Gooden (2001) carried out a citation analysis of chemistry doctoral dissertations as a way of determining material use. Waugh, and Ruppel (2004) analyzed 265 references from dissertations and research papers to determine core journals in the Workforce Education and Development (WED) discipline, and provide Morris Library with a guide to serials acquisition and maintenance in the discipline, and make available to future WED students a core list of journals.

Labonte (2005) used citation analysis to determine if a science-engineering library was meeting the needs of an interdisciplinary faculty. The study aimed at developing a core list of journals and identifying journals to be added to the collection. Results indicated that the library subscribed to 98 percent of the journals in which faculty members published their articles or cite frequently. Pancheshnikov (2007) studied graduate biology student theses and compared the findings to the literature cited in faculty publications as a way of making informed decisions regarding collection development management.

Khosrojerdi's (2005) citation analysis study of masters' psychology dissertations in Tehran University from 2001 to 2005, revealed 74.6 % of general psychology students favoured periodicals, followed by 13.2 % books. Khosrojerdi noted further that dissertation references are important for two reasons: first, they support the study, and second they give specific bibliographies for the studied subject. Therefore, researchers evaluate dissertations to know the actual usage of library resources in any given field. Olatokun and Makinde (2009) studied master's theses in animal science and established that journals were the most used reference materials. Sam (2008) also reports that a majority of the resources cited were journals (44.5%), while books accounted for 32.5%. Gooden (2001) revealed the same findings.

Walcott's (1991) national study of randomly selected geo-science dissertations revealed that 79.6 % of the cited works were to journals. The study further revealed that researchers preferred publications in local languages. Walcott's (1994) study analyzed biology theses and dissertations covering the period 1989-1992. The results of the study revealed that biology students cited 95% periodicals articles and only 5% books.

Kuruoppu and Moore (2008) examined the information sources used by doctoral students in agriculture and biological sciences, and found that journals had 24,072 out of 29,894 citations (80.5%). LaBonte (2005) discovered that out of 4,023 citations analyzed from 643 journals, 318 or 49.5% were to journal articles, and one journal (Applied Physics Letters) had 267 citations. The mean citations per bibliography was 28.77, of which 90.2% was journals, 3.4 % conference proceedings, and 6.4% other formats such as books, patents, and personal communication. Kraus (2002) and Gooden (2001) studies reported similar findings that authors cited more journals than books. To examine the library's support to biological research Crotteau (1997) compared faculty's publications citations to rankings in Journal Citation Reports (JCR). Results indicated that it was more useful to state that a journal is more or less cited by local faculties than by the wider scientific community.

On the other hand, Ahmadzadeh (2004) study reported that in the building construction discipline 82.6 % of citations were to monographs followed by 14.6 % periodicals. A study of citation behaviour of undergraduate and postgraduate students in the Federal University of Technology in Nigeria conducted by Anunobi (2002) revealed that undergraduate students did not appreciate the importance of periodicals in research as a result they utilized monographs more than periodicals. A periodical use study at the Federal University of Technology Oweri Library by Iheaturu (2002) also reported low citation to periodicals in preference to monographs. The study attributed, the little value placed on periodical literature by first year students to librarian's practice of placing periodicals under closed access. Omekwu and Popoola (1991) and Ogunleye (1996) found that monographs were the most cited. De Tiratel and Ramanos's (2000) longitudinal study of information use by 124 humanities and social scientists in universities in Argentina revealed that, the majority (30.4%) preferred monographs to journals, and they sought for information by first consulting colleagues. Okiy (2003) analyzed 4,012 citations from 70 postgraduate education dissertations. The findings were that, monographs received the highest citations (60.3 %) against (24.5%) journal citations. Further, the study revealed that 12 of the 18 most cited journals were local publications.

Royahi's (1997) citation analysis study of 20 doctoral dissertations in the Arts and Humanities from universities in Tehran revealed that of 11,848 citations analyzed, 58.6 % of all cited works

were books, 27.5 % were periodicals, 8.4 % were dissertations, and 5.5 % comprised of other information sources. Slutz (1997) cited by Rosy (2009) conducted a citation analysis study of 16 Master's theses using the following variables: gender of cited author; format (book, article within book, journal article, thesis/dissertation); and place of publication. Findings indicated that most sources cited were books.

Nkiko and Adetoro (2007) citation analysis study of Covenant University students' research project, also revealed more citation to monographic resources (53.3%), followed by journal citations (25.16%), web-resources (7.7%), newspapers (3.9%), conference proceedings (3.7%), dissertations (3.4%). Similar results were reported by (Mochida, 1976, Obokoh, 1985, and Iya, 1996). These studies further revealed that researchers cited other types of literature such as theses / dissertation, conference proceedings and technical reports. Similarly, Riahinia's (2010) citation analysis study of masters' dissertations in the library and information science field in universities in Tehran indicated that students' citation behaviours favoured monographs.

The subject area of research is also an important consideration. Thus, in academic institutions, citation analysis may be useful in determining faculty staff contribution in terms of publication in their field of specialization as well as identifying most researched area in a given speciality. Sam (2008) discovered that academic libraries were the subject area covered most. Aina and Mooko (1999) discovered that the most frequently covered area was professional education, with 12.3%, followed by information technology at 8.5%.

Ahmed, Kanyengo and Akakandelwa (2010) conducted a study to explore the subject matter and research methodologies used in clinical speciality for the master of medicine programme from 1986 to 2009 at the University of Zambia, School of Medicine. The results were that, few dissertations used experimental designs and most of the dissertations addressed determinants of the causes of diseases through cross sectional studies while HIV and infectious diseases were the principal research topics. Akakandelwa (2007) conducted an informetrics analysis at the University of Zambia, with reference to the provision of library and information resources. He stressed that, collection assessment is one method used to evaluate the effectiveness of the library's acquisition programme. It helps to identify weaknesses in the collection, and provide information for collection enhancement. He further stressed that research on how academics obtain and use library resources does provides facts and opinion otherwise not known or expressed to librarians. Akakandelwa supports the view that collection assessment can lead to user based strategic planning.

2.4 Summary

This chapter has revealed literature relevant to the study's theme. Indicating the purpose for reviewing the literature, the importance of resource usage evaluation and has pointed out some researches formerly conducted and their methodologies. The chapter further outlined and discussed research that have used citation analysis of students dissertations and theses in different fields in academic institutions, pointing out the reasons behind undertaking such studies. Finally, the literature has indicated that citation analysis is a worthwhile method that helps librarians in assessing the strength and a weakness of a library's collection based on the actual usage of resources based on what scholars cite in their research publications. Therefore, this study contributes to the understanding of the type of information resources masters' students in the education discipline at the University of Zambia cite most in writing their dissertations.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

The chapter presents and discusses the method used to determine the type of information resources used by masters' graduate students in the education discipline at the University of Zambia, with special emphasis on periodicals. The chapter illustrates the research design, population of the study, research instruments, data collection techniques, and data analysis.

3.1 Research design

Methodology is a body of methods, rules and procedures employed by those conducting an investigation. It includes the philosophical approach, theoretical models, rules, hypotheses formulation and conceptual operationalization. Bless and Achola (1998) refer research design to the planning of any scientific investigation from the first to the last step. Research design thus, guides the researcher in data collection, data analysis and interpretation of the collected data.

This study used citation analysis method to analyze bibliographic references cited in the education dissertations to determine the type of information resources cited by researchers in the education discipline, identify the most cited information resources in the masters' dissertations in the School of Education, determine the most cited journals in the education dissertation at the University of Zambia, examine the extent to which education masters' students in their dissertations cite journals from non-education discipline, ascertain the age of cited resources in masters' dissertations in the education discipline, and establish the most cited authorship type in the education dissertations at the University of Zambia. Citation analysis as alluded to earlier is unobtrusive research technique used in evaluating information resource utilization in a library. In citation analysis studies, references provided by researchers or authors in their documents are the unit of analysis. The implicit assumption of using this technique is that, the cited document satisfies the author's information needs in relation to research subject area.

3.1.2 Population of the study and Sampling methods

All education dissertations conferred at the University of Zambia during the period under review, which were shelved in the special collection at the time of drawing a sampling frame, were considered except those dissertations from library and information science programmes (LIS). Because the programme had its first graduating students in 2010 as such, the number of dissertations did not meet the selection criteria. Dissertations were used because graduate students are believed to be heavy users of library resources such that, relevant information

resources are identified by their citedness in their dissertations or papers they publish. Brazzeal and Fowler (2005) as cited in Laura (2011) supports this assumption by theorizing that graduate students are heavy users of library resources and their products (dissertations) are readily available. As such, they are suitable resource for citation analysis studies.

A sampling frame consisted of one hundred and sixty five (165) dissertations selected from the shelves using a selection interval of five dissertations from the first selected. These were coded 1-165 and the codes were later entered into SPSS 14.0 software where a random case sample of approximately 51% or (85) dissertations was electronically drawn. Drawing a sample electronically was used to guarantee accuracy in the sample selection and avoid personal judgment with regard to which dissertations to include in the sample.

3.1.3 Research instruments

The units of analysis were the 4,722 bibliographic references from the 85 dissertations giving an average of 56 citations per thesis. Data was statistically analysed and tabulated using SPSS 14.0 and MS Excel 2007 software packages; To establish whether education masters' student cited periodicals outside the education discipline, the Ulrich International Periodical Directory 31st edition, was used to classify the journals into four major subjects: education, humanities and social sciences, medicine and natural sciences.

3.1.4 Data collection techniques

Bibliographic references in the 85 sampled dissertations were manually extracted and classified into eight (8) exclusive formats; monographs, journals, web resources, manuscripts, theses, conference papers, newspapers and other resources (comprising of magazines newsletter, radio and television programmes). The cited resources were grouped according to their citation frequencies. Journals cited were ranked according to their citedness and crosschecked with the Library's holding to determine the Librarian's strength in meeting user's periodicals needs assuming that the resources were sourced from the University of Zambia Library.

3.1.5 Data Analysis

The citations were later entered into MS Excel spreadsheet for analysis using the variables: programmes of study, citing author, year dissertation published, cited author, year cited source was published, format cited, title of cited source, place of publication, publisher, journal title cited, subject of journal cited, and age of cited source. This classification of information sources is in line with the formats used by Olatokun and Makinde (2009) who classified citation formats used in the doctoral theses into journals, books, conference papers, web resources, technical

reports, standards, theses/ dissertations and miscellaneous. Similarly, Williams and Fletcher (2006) grouped information resources in their citation analysis study into eight groups. The data extracted was later exported into Statistical Package for Social Sciences (SPSS) for analysis. The 4722 citations generated from the 85 dissertations were quantitatively analyzed using SPSS 14.0 software.

3.2 Justification for the study

Swanepoel (2008) observed that citation analysis enables a researcher to gather and analyse cited references in an unobtrusive and non-invasive way. The method helps researchers acquire knowledge about which resources researchers utilized in their academic works. With regard to the current study, Masters' dissertations proved to be the best objects of analysis because graduate students are heavy users of library resources, and their products (dissertations) are readily available hence making the process of data collection manageable with zero rate of non response rate (Brazzeal and Fowler, 2005).

Literature reviewed indicates that most studies conducted in the past, were in sciences, engineering, biology, and authors' contribution. Very few analyzed dissertations in the education faculties programmes at masters' level especially in Zambia. While it is true that every research method has its merits and demerits, for this study, the method was suitable based on the objectives of the study. Devarajan (1995) argue that compared to other methods, citation analysis is unbiased and it is evidence based.

Haycock (2004:102-105) states that, "As a component of the collection development toolkit, citation analysis can yield data regarding use of library collections to guide and support selection decisions. Given the increasing pressures on library collection budgets, academic librarians with selection responsibilities may want to draw on tools such as citation analysis for help in making decisions about resource acquisition, retention, cancellation, and provision of electronic access. Furthermore, Citation analysis of dissertations is a tool that academic librarians can use to develop an indicator of collection use by graduate students. Results can inform and support collection development decisions. Those new to selection in a particular discipline or library may find this type of methodology to be a helpful tool for understanding the use of their collections".

Therefore, the findings of this study would be useful to the University of Zambia library and can be used in making an informed decision with regard to which sources the Library should

consider a must have as a result of their usage statistics. Based on this assumption, the study has a practical implication to the University of Zambia Library and other academic libraries in general as it add knowledge on how to assess the library's collection relevancy through citation analysis. The findings of this study may serve as a supporting tool for undertaking regular resource usage research to identify active collection in the University of Zambia Library.

3.3 Quality of research design

Validity refers to the extent to which the variables used in the research actually measure what they purport to measure. To achieve validity, the researcher grouped the variables of analysis into eight mutually exclusive formats: conference papers, journals, manuscripts, monographs, newspapers, theses, web resources and other resources that included (magazines, newsletters, radio and television programmes).

3.3.1 Internal validity

Leedy and Ormrod (2001) said internal validity of a research is the extent to which its design and the data that it yields enable the researcher to draw accurate conclusion about the relationships between variables and be able to generalize the findings to a wider area. The measures of ensuring internal validity in a research are: unobtrusive measure, triangulation, sample size and time span. The fact that citation analysis is an obtrusive method of investigation guarantees internal validity in this study. Furthermore, to ensure internal validity the research's analysis was based on the eight identified formats and set a minimum number to 20 references for a dissertation to qualify to be included in a sampling frame. The variables of the population under investigation were objectively identified. This helped to minimize inconsistency. For accuracy, bibliographical references were counter checked with authoritative sources such as the Ulrich's International periodical directory, Library of Congress subject headings, and the University of Zambia Library Online Public Access Catalogue (OPAC) where incorrect citing was suspected.

3.3.2 Consent

The researcher obtained a letter from the Assistant Dean Directorate of Research and Graduate Studies (DRGS) to conduct the identified research topic in the designated area. The researcher also sought approval from the head of Special Collections to analyze the bibliographical references in the dissertations housed in the department, as well as adhering to library rules of not photocopying any part of the sampled dissertations but to extract the required data manually.

3.3.3 Limitation of the study

Although citation analysis is a useful tool for determining collection development needs, it has its own challenges. (Ching and Chennupati, 2002: 399) observed that the use of this method is however, questionable because of the possibility that some resources that are cited may not necessarily have been used. Laura (2011) and Griscom (1983) argue that citation analysis cannot measure resources informally used by library users. In this regard, an information resource informally used by researchers under investigation does not count. Further, the study could not prove whether the information resources cited were from the University of Zambia Library or not. The results may also be reflecting that monographs were the easily accessible resources to the researchers, since users can only cite information resources that they are able to retrieve. Therefore, the Library may be subscribing to various resources to whose access might be limited due to students' lack of information literacy skills. This might have contributed to student's heavy reliance on monographic resources. The other limitation is that, this study does not provide reasons why a particular information source was preferred over the other, neither does the research justify the reasons researchers preferred the cited information resources.

However, despite the perceived limitations the information generated from the research does provide accurate information on the extent to which periodicals literature were cited by masters' students in the School of Education from the period 2000 – 2010 and highlights relevant resources used by researchers whose dissertations were investigated.

3.4 Summary

The chapter has explained the method used in conducting this study and justified the importance for undertaking the study that, the findings would be useful to the University of Zambia library in making an informed decision with regard to cited information resources. The chapter has also indicated that, the populations of the study was 165 masters' dissertations in the education discipline at the University of Zambia from 2000-2010, the sample size and sampling method, units of analysis, instruments used, and data collection techniques and data analysis have all been revealed. The chapter has revealed the steps taken by the researcher with regard to adhering to set down regulations in the department where the research took place. In addition, the chapter has brought to light the limitations encountered during the process of conducting the study. As well as highlighting some of the technical hitches that are associated with citation analysis methodology.

CHAPTER FOUR: RESEARCH FINDINGS

4.0 Introduction

This chapter presents the findings of the study from the analysis of the bibliographic references generated from 85 Education masters' dissertations at the University of Zambia. The study aimed at identifying the format, and the most cited information resources by graduate students in the education discipline in writing their dissertations during the academic years 2000- 2010. Table 1 shows that out of 4,722 citations recorded from the 85 dissertations, monographs received the highest number of citations (2,855) and journals were second with 823 citations. In order to determine the local availability of the journals cited, the journals titles cited at least eight times were cross-checked with the library holdings to establish their availability in the library.

4.1 Dissertation distribution by year

When determining the distribution of the dissertations by year of study. The results indicate that, 22% (19) were published in 2010, 19% (16) were published in 2009, 14% (12) were published in 2008, 11% (9) were published in 2006 and 2007 respectively, 8 % (7) were published in 2002, 5% (4) were published in 2000 and 2005, 2% (2) were published in 2001 and 2004, while one was published in 2003. The year 2010 had the highest number of dissertations while the year 2003 had the least number of dissertations (Figure 1).

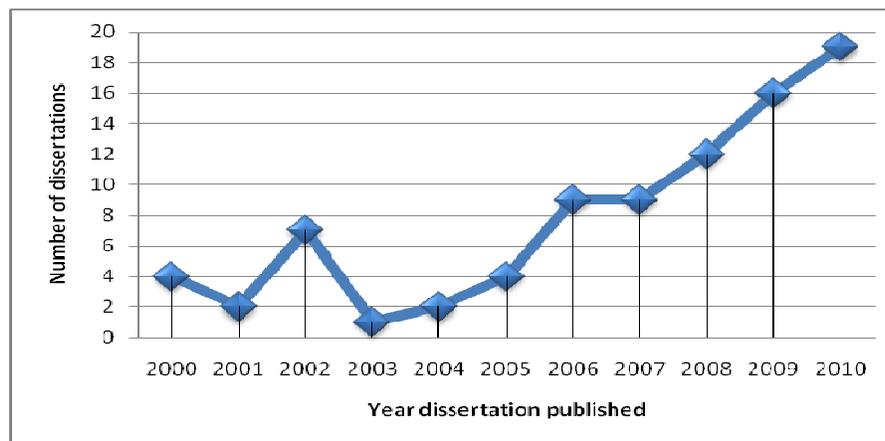


Figure 1: Dissertation distribution by year

The dissertations distribution by programmes were: 38.8% (33) were from education administration, 20% (17) were from sociology of education programmes, 12.9% (11) from educational psychology, 10.6% (9) from Special education, 7.1% (6) were from environmental education, 5.9% (5) were from adult education programmes, 3.5% (3) from science education while 1.2% (1) was from geography education programme.

4.2 Format of cited resources

The 85 dissertations yielded 4,722 bibliographic references of which 60.5% (2855) of the cited resources were monographs, 17.4% (823) were journals articles, 7.7% (363) were citations to web resources, 5.4% (253) were manuscripts, 4.0% (188) were citations from theses/ dissertations, while 1.4% (64) were citations to newspapers, and 1.1% (53) were citations to magazines, newsletters, radio and television programmes. (table1).

Table 1: Frequency distributions of cited resources

Type of resources cited	Frequency	Percent	Cumulative Percent
Monographs	2855	60.5	60.5
Journals	823	17.4	77.9
Web resources	363	7.7	85.6
Manuscripts	253	5.4	90.9
Theses	188	4.0	94.9
Conference paper	123	2.6	97.5
News paper	64	1.4	98.9
Magazines, Newsletter, radio & TV.	53	1.1	100.0
Total	4722	100.0	

4.2.1 Most cited resources

Out of 4,722 citations recorded from the 85 education dissertations, the results indicate that, the most cited resources during the period under review were monographs. Which recorded 60.5% (2855), while the least cited format were magazines, newsletters, radio and television broadcasting programmes, contributing 1.1% (53) citations. Results show that there is a significance relationship between number of citations and the number of dissertation in the education dissertations during the period under review.

The year 2010 that had high number of dissertation recorded the highest number of citations while citations were lowest (76) in the year 2003 that had only one dissertation. This implies that the number of student's enrolment has a direct relationship on the demand of library resources and services. Evidence indicates that, the highest numbers of citations were recorded in the year (2010) that had high number of dissertations. On the other hand, the least citations were recorded in the year 2003 which had the lesser dissertation (Table 2).

Table 2: Number of dissertation and citation frequencies

Year	Number of dissertations	Frequency	Percent
2010	19	986	20.9
2009	16	832	17.6
2008	12	710	15.0
2006	7	591	12.5
2007	7	495	10.5
2002	7	310	6.6
2000	4	238	5.0
2005	4	205	4.3
2001	2	162	3.4
2004	2	117	2.5
2003	1	76	1.6
Total		4722	100.0

A test of correlation significant using spearman's rho confirmed there was a significant relationship between number of citations and the number of dissertation at $\rho(n=11) = 0.993$; $P < 0.01$. This signifies that as the number of student increases, there is a direct proportion to the number of resources used. Hence, the need for a library to provide more resources if it is to meet the user's research information needs (table 3).

Table 3: Spearman's rho test of significance

Spearman's rho test of significant		No. of citations	No. of dissertations
No. of citations	Correlation Coefficient	1.000	.993(**)
	Sig. (2-tailed)		.000
	N	11	11
No. of dissertations	Correlation Coefficient	.993(**)	1.000
	Sig. (2-tailed)	.000	.
	N	11	11

**Correlation is significant at the 0.01 level (2-tailed).

4.3 Journal citation by programmes

From 4,722 bibliographical references recorded, journals accounted for 17.4%. Of these, 5.7% were from education administration programmes, 4.8% were citations from educational psychology, 2.6% were citations from special education programmes, 2.2% were from sociology of education, 1.1% were citations from science education, environmental education 0.6%, and 0.3% were citations from adult education programme, geography education programme had the least journal citation amounting to 0.2 %.(table 4).

Table 4: Journal citation by programmes

Citing Programmes	Number of dissertation	Journal citation	%
Education administration	33	270	5.7
Educational psychology	11	227	4.8
Special education	9	123	2.6
Sociology of education	17	102	2.2
Science education	3	51	1.1
Environmental education	6	28	.6
Adult education	5	14	.3
Geography education	1	8	.2
Total	85	823	17.4

4.3.1 Most cited journals

Journal of educational psychology was the most cited journal with 29 (3.5%) citations and ranked first (Table. 5). The table further show that, the top two highly ranked journals with a cumulative citation of 6.0% were both from psychology discipline. Educational research and perspectives, journal of personality and social psychology were at third position with 19 (2.3%) citations, Zimbabwe journal of education research was ranked fourth with 15 (1.8%) citations, Science education ranked fifth with 10 (1.2%) citations, at sixth position were Comparative education review and Review of educational research, with 9 (1.1%) citations each. At seventh position were Psychological review, Zambia education review, Adolescence and Developmental psychology. These were all cited 8 (1.0%) times each. Using a minimum cut point of a journal receiving at least eight citations, table 5 indicates that, 13 core journals, accounts for 3.3% above the total journal citations. The results imply that only thirteen core journals were required to produce 85 dissertations.

Table 5: Core journals

Rank	Journal titles	F	%	CP
1.	Journal of Educational Psychology	29	3.5	3.5
2.	British Journal of Educational Psychology	20	2.4	6.0
3.	Educational research and perspectives	19	2.3	8.3
3.	Journal of Personality and Social Psychology	19	2.3	10.6
4.	Zimbabwe Journal of Educational Research	15	1.8	12.4
5.	Science Education	10	1.2	13.6
6.	Review of Educational Research	9	1.1	14.7
6.	Comparative education review	9	1.1	15.8
7.	Psychological Review	8	1.0	16.8
7.	Zambia Education Review	8	1.0	17.7
7.	Adolescence	8	1.0	18.7
7.	International journal of art and design education	8	1.0	19.7
7.	Developmental Psychology	8	1.0	20.7

A further investigation to determine how well the University of Zambia Library would meet the periodical information needs of researchers in the education discipline based on the core list of cited journal titles, in relation to the Library's holdings, the results indicates that, of the 13 core journal titles, 46% (6) were accessible in both print and electronic formats, 39 % (5) titles were physically available in the Library's holdings, while 15% (2) of the titles were accessible through Health Internetwork Access to Research Initiative (HINARI). These results indicate that all the 13 most cited journals, were available for consultation in the library. This is an indication of the strength of the journal collection in the library with regard to meeting the periodical information needs of education masters' students (Figure.2).

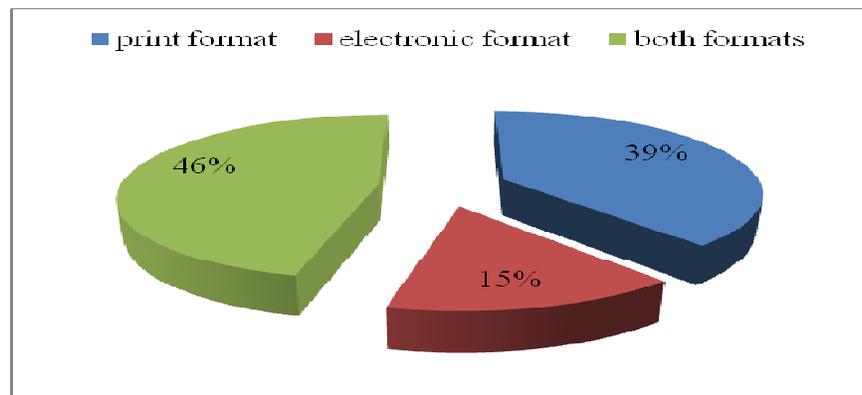


Figure 2: Core journal Accessibility

4.3.2 Citation to journals outside education disciplines

On the extent to which researchers in education discipline collaborate with researchers from other disciplines rather than education, the findings confirm citations from journals in other disciplines as significant. Forty four percent (44%) of the total citations to periodicals were from journals from other disciplines. Of these, 34% (278) were citations from journals in the humanities and social sciences, 6% (49) citations were from journals in the medical discipline, and 4% (38) of the citations were from journals in the natural sciences discipline. The remaining 56% (458) were citations from journals in the education discipline. (Figure 3).

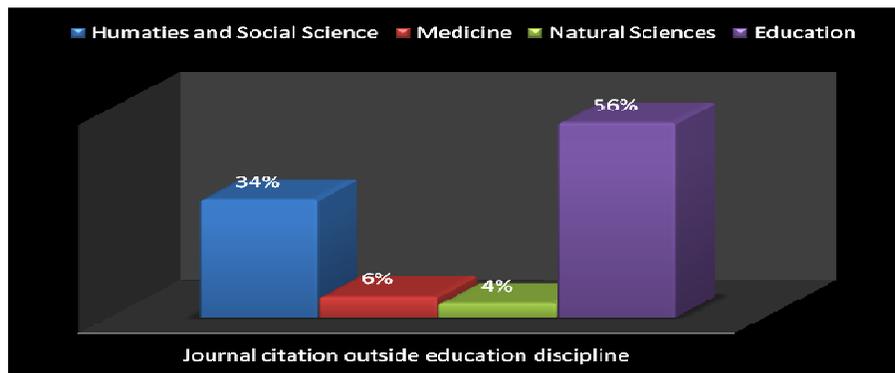


Figure 3: Journal citation outside education discipline

4.4 Age of cited resources in the dissertations

The majority 60% (2823) of the resources cited in the education dissertations were aged between 10 and 92 years, while the minority 39% (1830) were in the age range 1 - 9 years, and 1% (69) of the resources had, their age not indicated. Of these, 66 were web resources, 1 was a journal, 1 a manuscript and 1 a newspaper respectively (appendix I). From table 6, it is evident that monographs had the highest literature obsolescence (age) 92 years, followed by journals 69 years while newspapers had the lowest literature obsolescence of 31 years. The mean citation age was 14.5 years, with a standard deviation of 11.03 years.

Table 6: Literature obsolescence by format

Format	citations	MiniAge	Maxi Age	Average	Std.Deviation
Monographs	2853	1	92	16.2	11.303
Journals	823	1	69	16.2	10.072
Web resources	363	1	61	5.4	7.965
Manuscripts	253	1	46	10.7	8.831
Conference paper	123	1	43	10.6	8.417
Theses	188	1	36	12.2	8.799
Other resources	53	1	33	6.3	5.933
Newspapers	64	1	31	6.0	7.797
Total	4722			14.5	11.028

The minimum age was one year and the maximum age was ninety-two years (Appendix I). The mode was 9 years. There was an average of 56 citations per dissertation. The findings further revealed that web resources had the least mean citation age (5.4) while monographs and journals had the highest mean age of 16.2 years. The oldest cited resource was a monograph aged 92 years. Knowing the age of resources cited by researcher is important in that it helps librarians to make a decision when it comes to weeding the lesser used age group.

4.5 Authorship type

Based on the tabulations shown in figure 4, it is deduced that masters' students in the education discipline cited 79.7% (3763) personal authored resources. Amongst these, 53.3% (2515) were single authored publications and 26.4% (1248) were co-authored. Government published resources contributed 9.4% (445) citations, 5.9% (278) of the resources were United Nations publications, only .5% (23) UNZA publications were cited by the researchers in their dissertations. While 4.5% (213) had no authorship type indicated.

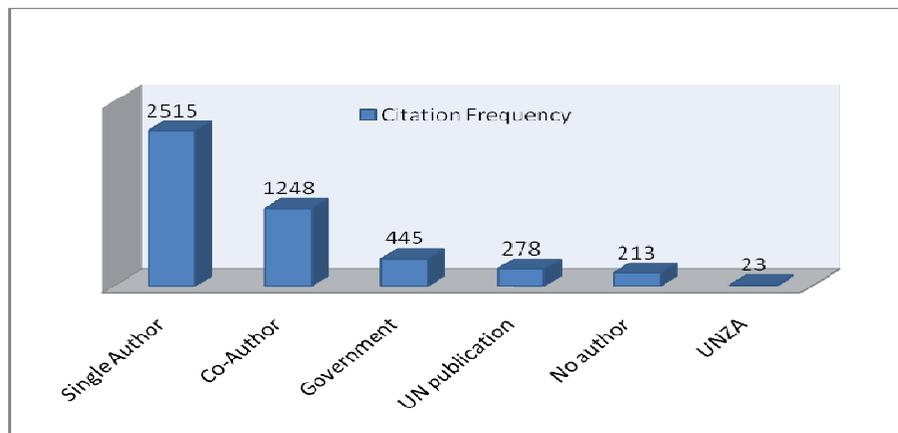


Figure 4: Authorship type

4.6 Summary

This study analyzed citations obtained from 85 masters' education dissertations conferred at the University of Zambia to determine the types of resources, and the extent to which periodicals articles were used by students in the education discipline, when writing their dissertations. Four thousand seven hundred and twenty two (4,722) bibliographical references (citations) were analyzed from 85 sampled dissertations published during the academic years 2000 -2010. The findings revealed that masters' students in the education discipline cited various types of resources: monographs, journals, web resources, manuscripts, theses, conference papers, newspapers, and other resources such as (magazines, newsletters, radio and television broadcasting programmes) in writing their dissertations. The results show that monographs are the most cited at 60.5%, while magazines, newsletters, radio and television broadcasting programmes were the least (1.1%) cited information resources.

The results further, revealed that 60% of the cited resources were aged between 10years and above, and 39% of the cited resources were in the age range of 1 - 9 years. Further it was noted that the oldest cited resource was a monograph aged 92 years. The results of the study revealed that, majority of the information resources in the University of Zambia Library were obsolete.

On journal citedness, the results indicated that, Journal of Educational Psychology was the most cited recording 3.5% citations, followed by British Journal of Educational Psychology at 2.4%. The study also ascertained that just like researchers elsewhere, education masters' students at the University of Zambia source for information beyond their discipline in writing their dissertations; 44% (365) of journal citations were from outside education discipline comprising mostly those from humanities and social sciences discipline. The results also indicated that, the citation pattern in the dissertations under review had a significant correlation with the number of dissertations. On the authorship type, the results demonstrated preference to personal authored resources 79.7% (3763). Results suggest that analysis of bibliographic references in students' dissertations is a valid method for evaluating library resource utilization as well as identifying library scholarly contributions in institutions of higher learning.

The findings of the study further enabled the researcher to establish that education masters' students at the University of Zambia, made little use of periodical articles in writing their dissertations. The importance of using periodicals in an academic institution cannot be overstated. This is because researchers need scholarly periodicals to supplement monographs to write their dissertations. Although the results confirm journal utilization in the dissertations under review, the results confirm that, periodicals are not popular information resources amongst masters' students in the School of Education at the University of Zambia. These findings give a feedback to University of Zambia Libraries with regard to resources used by education masters' students during the period under review. Acquisitions' department can use the findings to evaluate the library's strength in meeting the user's information needs and guide their resource acquisition process based on pertinent resources cited in the evaluated dissertations.

CHAPTER FIVE: DISCUSSION OF RESULTS

5.0 Introduction

This chapter discusses the findings presented in chapter four. From the data, it is possible to draw some generalizations about the citation pattern of master's students at the University of Zambia in general and the School of Education in particular. The discussion is based on the six research questions indicated in chapter one. The chapter starts by presenting an overview of the types and the intensity of information resources cited by the researchers in the programmes under review.

5.1 Dissertation distribution by year

Based on the results presented in chapter four, out of the years sampled for analysis, it is deduced that the year 2010 was the most productive year in terms of number of students graduating at masters' level in the School of Education and hence the highest number of dissertations. This development has an implication on the institutional's library both in terms of infrastructure and information resources, because as more students specialize in various professions there is a strong correlation for the demand of information resources the library is expected to provide. This observation is based on the fact that, programmes and years which had the high number of dissertations, (education administration) recorded the highest citations in all formats, while geography education which had the least number of dissertations had fewer citations, which may imply less demand on library resources.

5.1.2 Type of cited information resources

Out of 4,722 bibliographic references that were analyzed from the 85 dissertations, 60.5% (2855) were citations to monographs, followed by journals 17.4% (823), web resources 7.7% (363), manuscripts 5.4% (253), theses were at fifth position 4.0% (188), newspapers were cited 64 (1.4%) times, while 1.1% (53) were citations to magazines, newsletters, radio and television programmes. The results indicate that students cited more monographic resources than other formats. These findings may support the proposition that monographic resources were of higher visibility to researchers than other information resources. In addition, monographs could be the most preferred resources by the researchers in the education. The striking results revealed in this study are that of the invisibility and low levels of citation to web resources by the researchers. The Library has been providing access to electronic resources since the year 2000 (Akakandelwa, 2007). Therefore, the fact that these resources have not made an impact raises a lot of questions over what could be the problem. Perhaps there is need to intensify information literacy programmes and market the resource's availability to avoid the Library budgeting for

resources that are not being used by the intended users. These findings support, those of Okiy's (2003) study that analyse 4,012 citations from 70 postgraduate dissertations in education, where monographs were cited 60.3% (2,418) and journals were second at 24.5% (982). Iya (1996), Obokoh (1985) and Mochida (1976) reported similar results in their study of education theses. Like in the current study, these studies also revealed that authors cited other sources such as theses / dissertations, conference proceedings and technical reports.

Nkiko and Adetoro's (2007) citation analysis study of Covenant University students' research project, also reaffirmed high citation 53.3% to monographic resources, with journals ranking second at 25.2%, web resources 8%, newspapers 4%, conference proceedings 4%, and dissertations 3.4%. Slutz (1997) citation study of 16 Master's theses also reported similar results. Citation is an information exchange process. The citation pattern revealed in the current study could be pointing to the important resources that were available in relation to the citing author's research topics. Every instance of referring to an external text indicates the citing author's appreciation, and confirms the degree of similarities of ideas to the topic of the citing document. Based on the above observation, the results may imply that:

- a). The exhibited citation pattern may be reflecting on what Master' of Education Students preferred most such as monographs to other resources.
- b). Indexing journals by titles not by articles could have led to their minimal retrieval or visibility to researchers. As such, researchers might have no alternative but to cite what they were able to retrieve.

However, the findings would help the UNZA Library Administration in identify the existing weakness in the library's collection, in comparison to resources cited in the dissertation under review and their availability in the Library, and also create awareness with regard to which type of information resources masters' graduate students in the School of Education cite most when writing their dissertations. Since results indicate that students cited most monographic resources, UNZA Library should purchase and provide the preferred monographic information resources to users in the education discipline. Apart from that, the Library should also market the less cited resources to avoid wasting resources by stocking resources that are not used a tall. The Library should take measures to encourage its users to develop a habit of consulting the Library's catalogue whenever they are searching for particular information. Further, it would be beneficial to the researchers in particular and other library users in general; if the University of Zambia Library could evaluate periodicals' management system to find out if the way periodicals are indexed has an effect to their article's visibility to researchers.

5.2 Journal citation in the field of Education

Journals accounted for 17.4% of citations. Table 4 indicate that education administration programmes, had the highest citations to journal articles 5.7% while the least journal citation were recorded in geography education programme 0.2%. This may be due to low number of dissertations sampled from the programme. However, the results confirm a strong correlation between the number of dissertations and resource usage (table 3). These results can help UNZA Library Administration to cost Library services based on the number of students enrolled in any given programme.

Despite the results confirming journal usage by masters' graduate students in the education discipline at the University of Zambia, the level of citations 823 (17.4%) out of 4,722 bibliographic references cited is not impressive. One would have thought that at master's level students were to utilize periodicals articles more than monographs, as periodicals rather than monographs reports most current research findings in various disciplines due to their publication frequencies. The findings of this study are in agreement with earlier studies conducted by (Anunobi, 2002 and Iheaturu, 2002,) on citation behaviour of undergraduate and postgraduate students at the Federal University of Technology in Nigeria, which reported more utilization of monographic resources than periodicals. In addition, Ajala's (1997) study of periodicals literature use by the pre-final and final undergraduate students in Nigerian Universities reported similar results.

These findings could have a negative impact on the University of Zambia Library as unit, because administrators may not be willing to finance for the acquisition of under-utilized (periodicals) resources. Equally, the Library Administration may find it difficult to justify for the continued funding for the resources not accepted amongst the users. Although several factors may be associated to the under-utilization of a particular information resource, this study, attributes the under-utilization of periodicals articles by education masters' students to; students' lack of preparatory readings before selecting their research topics, faculty staff should advise and encourage students to choose their research topic early enough and scan periodicals in their field of speciality during the build up stages of their selected topic. Student's culture of heavy dependency on lecture notes and few prescribed textbooks could be another factor leading to under utilization of periodicals. Lastly, the study attributes to the manner in which periodicals are indexed in the University Library example, indexing periodicals by title not indexing articles, could have played a role in making periodicals less visible to researchers despite being available in the Library.

To encourage researchers in the education discipline to utilize periodicals resources, the University of Zambia Library should collaborate with faculty staff in the School of education in particular and other Schools in general to impart skills on how to search for periodicals articles to curtail the researcher's practice of over dependency on lecture notes and prescribed textbooks. This will help sharpen student's information retrieval skills and maximize on the utilization of periodicals articles. Rather than letting, these costly resources remain under utilized.

5.2.1 Most cited journals

With regard to which journals were most cited in the masters' dissertations during the period under review, results demonstrate that journal of educational psychology was the most cited journal with 29 (3.5%) citations followed by British journal of educational psychology 20 (2.4%) citations. The results indicate that, the top two highly ranked journals 6.0% are from the psychology discipline. The implications of these results are that perhaps education researchers publish their articles in psychology journals that appear to be visible to academics. In Library and Information Science (LIS), research on literature scattering has been conducted. Scattering in librarianship refers to Bradford's law which state that small core journals have as many articles on a given subject as a larger number of journals have. Based on the core journal distribution shown in table 5, journal title dispersion of 411 titles produced 17.4% (823) citations. Using a cut point of at least eight citations to a periodical, a list of 13 core journal titles about (3.2%) (by frequency of citation) covered 20.7%, amounting to (3.3%) above the total journal citations recorded in the 85 dissertations.

Grouping the journal citation pattern into zones showed that zone one consisted of thirteen journal titles which contributed 20.7% citations. These received citations ranging from eight to nineteen times. Thirty four (34) journal titles belonged to zone two which contributed 41.4% citations. Journal titles in zone two received citations ranging between four to seven times. Zone three consisted of the largest number of journal titles three hundred and sixty four (364) which contributed 37.9% citations. The titles in zone three received citations ranging between one to three times. Therefore, Bradford's zone of few journals accounting for many citations and bibliographic law of concentration applies in this study.

Comparing the Library's strength in meeting the researcher's periodicals need, the core cited journal titles were compared to the Library's periodicals holdings, the findings indicates that, assuming the researchers used the University of Zambia Library, the library would have met 100% (13) of their periodicals information needs. Evidence indicates that, of the 13 core

journal titles, 46.2% (6) were accessible in both print and electronic formats, 38.5 % (5) titles were physically available in the Library's periodicals holdings, while 15.4% (2) of the titles were fully accessible through (HINARI) Health Internetwork Access to Research Initiative. (Figure 3). The results further revealed that, the Library was subscribing to some journal titles in both print and electronic as indicated in (figure.2) thereby increasing periodicals subscriptions. To save on periodicals subscription cost, the University of Zambia Library's Acquisition policy should clearly stipulate the resources that should be acquired in electronic format and those in print. It would be cost effective if the Library could only be subscribing to (print) periodicals titles to only those journals that the Library does not fully subscribed to electronically.

5.3 Citations from non- education discipline journals

On the extent to which masters' graduate students cite journals from non-education discipline in their dissertations, the findings confirm usage of journals from non-education discipline as significant. Thus 44% (365) of the journal citations were from journals outside education disciplines. Humanities and social sciences was the most contributing discipline outside the education sector at 34% , and 4% was cited to journals in the natural sciences, indicating that natural sciences is the least cited field in the education masters' dissertations during the period under review.

These results could be attributed to the fact that may be scholars in the humanities and social sciences publish their articles or research findings in high profile journals and disseminate their work using various platforms such that they are easily accessed to a wider community and consequently get cited. In addition, the issue of subject relationship between humanities and education discipline cannot be underestimated; especially that 62.5% of the dissertations analyzed had their topics more inclined to humanities and social sciences disciplines. While natural sciences did not relate to most of research topics analyzed in the dissertations during the period under review. Citation analysis study conducted by Hurd (1992) found similar results and revealed that (49%) of the articles published by the chemistry department were not from the field of chemistry.

5.4 Age of cited Resources in the Dissertations

The mean age of the cited resources was 15 years; the median was 12 years, while the mode age was 9 years and the age dispersion around the mean (or the standard deviation) was 11 years. From the findings, we cannot reject the hypotheses that state that, at 95% confidence interval, the mean age of the cited information resources lies between 14.2 years lower bound and 15

years upper bound. The age range was 92 years and the minimum age of the resources whose age was recorded was 1 year. These results corroborate with earlier findings by Akakandelwa (2007) whose findings were that the oldest cited resource was a book in the education discipline. Thompson's (2002) study of the death of the scholarly monograph in the humanities revealed that the oldest cited work was 167 years, and confirmed a greater use of old materials in the monographic sources. Results further indicate that the majority of the resources 59.8% (2823) were aged between 10 to 92 years and were the least cited contributing 25% of the total citation. While the minority of the resources cited 40.2% (1899) were aged between 0 to 9 years contributed 75% of the total cited resources. The results suggest that masters' students during the period under review preferred resources that were reasonably current despite citing aged resources; this could be attributed to the fact that most cited resources are obsolete. Knowing the frequently cited age of the library's stock is fundamental when conducting a weeding process in the library. It helps in shaping the library's stock by weeding unpopular age group from the active circulation.

The findings of the study can guide UNZA Library to consider weeding obsolete education resources from active circulation. Assuming that all the resources were from UNZA Libraries, There is need to restock the library with current information resources and weed out those that are least cited from the active circulation. This will help enhance retrieval of the preferred resources by the users. On the other hand, return those resources that have longer literature obsolescence. The findings of the study reveal that as the age of a document became older and older their chance of being cited diminishes. This observation is contrary to Naushad and Nisha's (2011) study of scholar's use of information resources at Central Science Library (CSL) at the University of Delhi, which revealed that date of publication, carried less weight among all options. A cross tabulation of age by format, indicates that 50.8% (966) of the resources aged 0-9 years were monographs, followed by web resources at 15.9% (303), journals were at third position with 11.8% (226), manuscripts 7.6% (146), theses 4.6% (89), conference papers 3.7% (71), newspapers 2.7% (52), and 2.4% (46) comprised of other resources. The results indicate that web resources were the most current amongst the cited resources in that 83.4% of the total cited web resources were in the age group 0 to 9 years (Appendix I).

Based on the findings, both librarians and academic staff at UNZA, need to encourage researchers to develop the habit of consulting e-resources regularly to acquaint themselves with current trends in their field of speciality. This fact might have eluded the researchers under review hence, their dependence on obsolete monographic resources. User's awareness of the type of resources that exist in the library is cardinal.

Miyanda's (2010) study to ascertain factors affecting utilization of electronic resources by medical students at UNZA attributed lack of awareness as a major factor for under utilization of e-resources.

Publication date is cardinal in bibliographic references regardless of the format of cited source, because it tells the user when the source was published. However, the results of the current study revealed that 69 (1.5%) of the cited resources had no publication dates. Out of these, 66 were web resources; one was a journal, one a manuscript and one a newspaper respectively. The absence of publication dates to a large number of web resources exhibited by researchers in this study, might be attributed to the fact that graduate students in education discipline during the period under review, lacked skills to cite e-resources, hence the need for librarians to work with the faculty staff to impart knowledge to students on how to correctly cite electronic resources. The study can not over rule the possibility that some of the purported cited print resources could have been electronically retrieved but wrongly cited by the researchers due to lack of citing skills.

5.5 The most cited authorship type

Results revealed that major source of information in the dissertations under review were personal authored resources cited 79.7% (3763), whose distributions was 53.3% (2515) single authored publications and 26.4% (1248) were co-authored. Government publication accounted for 9.4% (445), United Nations 5.9% (278), and 4.5% (213) had no author. UNZA publications were cited .5% (23) see (Figure. 4). Results point to the fact that, on the overall, masters' students in the education discipline cited more of the personal authored resources than any other authorship type. The results further indicate that, the visibility of UNZA publication to researchers during the period under review was negligible or most of the articles the University of Zambia publish did not relate to students' research topics.

5.6 Summary

The study used bibliographical references cited in the 85 masters' dissertations from the education discipline to determine the type of information resources used by masters' students in the education discipline. The findings enabled the researcher to establish that masters' students at UNZA make very limited use of periodical literature for doing their research. The study also established that, education students at UNZA source for periodical literature beyond education discipline. It was also revealed that journals from psychology discipline were highly ranked.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This study has illustrated some of the characteristics of scholarly communication in the education dissertations published during the period 2000 - 2010 in the Faculty of Education at the University of Zambia. The study has shown that masters' students in the education discipline make use of different formats of information resources when writing their dissertations. The results of the study suggested that analysis of bibliographic references in students' dissertations is a valid method for evaluating library resource utilization as well as identifying library's contributions to scholarly communication in institutions of higher learning.

6.1 Conclusion

University libraries are a major part of the university's teaching and research infrastructure. The study examined the scholarly communication patterns in education discipline dissertations at UNZA through citation analysis, to gain knowledge of the type of information resources graduate students in the education discipline cited most in their dissertations, and ascertain the extent of periodical usage during the period under review. The data derived from the study revealed the researchers' preference to monographs was (60.5%) as compared to print periodicals articles (17.4%) despite the Library subscribing to over 2,466 periodicals titles.

Although, the importance of periodicals to masters' graduate researchers is demonstrated through 823 (17.4%) citations given to periodicals among the dissertations analysed, the data demonstrate that, periodicals are not popular information resources amongst masters' students in the education discipline at UNZA. The implications of the study's findings is that masters' students in the education discipline at the University of Zambia made less use of periodicals literature in writing their dissertations.

However, the results of the also revealed that researchers cited other formats such as: Web resources, Manuscripts, Theses, Conference paper, Newspapers, Magazines, Newsletters, Radio and Television Broadcasting Programmes. Furthermore, the study revealed that (44%) of the cited journals were from disciplines outside education. Implying that, the pattern of citation in the dissertations under review cut across disciplines. On the most cited periodical in the education masters' dissertation, the results indicates Journal of educational psychology, which received 3.5% (29) citations of the total journal citations. It was also established by the study that student's preference was to personal authored works, followed by Government published resources.

The results further proved that, citations in the dissertations under review strongly correlates with the number of dissertations, such that bibliographical references were minimal in the year that recorded lowest number of dissertations and high in year that had recorded high number of dissertations. On the age of the cited resources, the results of the study revealed that, the majority of the resources 59.8% (2823) were aged above 10 years and were the least cited, contributing 25% of the total citations. While the minority of the resources 40.2% (1899) were below 10 years, contributed 75% of the total citations.

The findings of the study are therefore not only useful in identifying the format and the most cited information resources by masters' graduate students at the University of Zambia, but they could also be beneficial to other libraries that lack knowledge on whether the type of information resources the library provide is actually meeting the users' expectation. The findings of this study therefore, give a feedback to librarians at UNZA with regard to resources most used by researchers in the education discipline. Therefore, the Library has an opportunity to fill the revealed gaps in its collection based on the findings.

6.1.2 Recommendations

In view of the findings, the study recommends that:

1. Lecturers and research supervisors should encourage students to cite periodicals articles rather than, them relying heavily on monographic resources.
2. The Library should vigorously market periodicals and other lesser cited resources not only to graduate students but also to other library users in order to be cost effective.
3. UNZA Library should provide current monographic resources to library users in the education discipline in order to meet their information needs.
4. The University of Zambia Library should periodically analyse dissertations to gain knowledge of the visibility of the resources it provides to researchers and what format of the collection is preferred.

6.1.3. Recommendation for further study

Several findings have emerged from this study with regard to information seeking behaviour and preferences of masters' students in the education discipline. This study focused mainly on the faculty of Education at the University of Zambia; it would therefore, be beneficial to replicate the study using other faculties within the Institution to establish whether the citation pattern in their dissertations were consistent with the findings of this study.

REFERENCES

- Abels, E. (2002). Information seeker's perspectives of librarians. *Advances in Librarianship*, (28), 151-70.
- Agee, J. (2005). Collection evaluation: a foundation for collection development. *Collection Building*, 24(3), 82-5. <http://www.emeraldinsight.com/journals.htm>. [Accessed.26/11/2011]
- Ahmadzadeh, S. (2004). Citation analysis of doctoral dissertations of civil and building discipline. *Fasnameh-e- Ketab*, 62, 33-47. www.emeraldinsight.com/journals.htm. [Accessed.26/10/2011].
- Ahmed,Y. , Kanyengo,C., and Akakandelwa,A. (2010). Mapping postgraduate research at the University of Zambia: a review of dissertations for the master of medicine programme. *Medical journal of Zambia*. 37(2).52-57. [Accessed 10/11/2012]
- Aina, L.O. (2002). Introduction to research. In L.O. Aina (ed.) *Research in information science: An African perspective*. Ibadan: Sterling-Horden.
- Aina, L.O. and Mabawonku, I.M. (1996), Management of a scholarly journal in Africa: A success story. *African Journal of Library, Archives and Information Science*,6 (2), 63-83.
- Aina,L.O. and Mooko, N.P. (1999). Research and publication patterns in library and information science. *Information Development* 15 (2) 116.
- Ajala, I.O. (1997).Use of the University of Ibadan library resources by graduate students, *Library Review*, 46 (6), 421-7.
- Akakandelwa, A. (2007).An Informetric Analysis of Research at the University of Zambia, with Reference to the Provision of Library and Information Resources. PhD.Thesis. University of Antwerp.
- Alemna, A. A, Chifwepa, V. and Rosenberg, D.(2000). African journals: An evaluation of their use in African Universities. *African journal of library achieves and information science*, 10 (2), 93-111.
- Al-Suqri, M.N. (2007). Information needs and seeking behaviour of social science scholars at Sultan Qaboos. University in Oman:A mixed-method approach, Thesis (PhD), Emporia State University. <http://gradworks.umi.com/32/94/3294687.html>. [Accessed. 11/10/2011].

- Anunobi, C.V. (2002). Citation behaviour of undergraduate and postgraduate students in the Federal University of Technology, Owerri: an issue for concern. *Nigerian Library and Information Science Trends*, 1 (1), 18-27. <http://gradworks.umi.com/32/94/3294687.html>. [Accessed.13/04/2010].
- Azar,O.H. (2007), A citation analysis based ranking of strategic management journal. <http://ideas.repec.org/el/c/paz.html>. [Accessed 16/05/2011]
- Black, S. (2001).Using citation analysis to pursue a core collection of journals for communication disorders. *Library Resources and Technical Services* 45(1), 3-9.
- Bless,C. and Achola, P. (1988). *Fundamentals of Social Research: An African Participative*. Lusaka, Government printers.
- Borin, J. and Hua, Yi. (2008). Indicators for collection evaluation: a new dimensional framework. *Collection Building*, 27(.4), 136-43.www.emeraldinsight.com/journals.htm. [Accessed. 16/07/2011].
- Brazzeal, B. and Fowler, R. (2005). Patterns of information use in graduate research in forestry, *Science and Technology Libraries* 26 (2), 91-106.
- Buchanan, A. L. and Herubel, J.P.V.M. (1994). Profiling PhD dissertation bibliographies: serials and collection development in political science. *Behavioural and Social Sciences Librarian*. 13(1), 1-10. www.tandfonline.com/doi/abs/10.1300. [Accessed. 28/3/2011].
- Budd, J. (1988). A bibliometric analysis of higher education literature. *Research in Higher Education*. 28(2), 180-190. <http://www.eric.ed.gov/ERICWebPortal/search/detailmini.jsp>. [Accessed. 02/05/2011].
- Buttlar, L. (1999). Information sources in library and information science doctoral research. *Library and Information Science Research*, 21(2), 227-245.
- Carlson,J.(2006). An examination of undergraduate student citation behaviour. *Journal of Academic Librarianship*. 32 (1), 14-22
- Chikate, R. V., and Patil, S. K. (2008). Citation analysis of theses in library and information science submitted to University of Pune: A pilot study. *Library Philosophy and Practice* . <http://unllib.unl.edu/LPP/chikate-patil.htm>. [Accessed 18/8/2011].

Ching,J.T.Y.and Chennupati,K.R.(2002). Collection evaluation through citation analysis techniques: a case of the Ministry of Education Singapore. *Library review*.51 (8) 398-405 www.Emeraldinsight.com/0024-2535.htm. [Accessed 9/08/2012].

Crotteau, M. (1997). Support for biological research by an academic library: a journal citation study. *Science and Technology Libraries*. 17(1), 67-86.

Curtis, D. (2005). E- journals: A how to do it manual for building managing and supporting electronic journal collections. New York: Neal-Schuman.
<http://www.ncbi.nlm.nih.gov/pmc/articles>. [Accessed. 1/10/2010].

De Triratel and Ramanos,S (2000), Accessing information use by humanists and social scientists: a study at the Universidad de Buenos Aires, Argentina. *Journal of academic librarianship*. 26 (5),346-54. www.ingentaconnect.com/content/els. [Accessed. 14/5/2011].

Dervin,B. And Nilan,M. (1986) Information needs and uses. *Annual review of information science and technology*. 21, 3-32. <http://communication.sbs.ohio-state.edu/sense-making.html>. [Accessed. 25/02/2011].

Devarajan, G. (1995). *Library Information users and use studies*. New Delhi; Beacon Books Development

Echezona, R.I.,Okafor, V.N., and Ukwamo, S.C (2001). Information sources used by postgraduate students in library and information science: A citation analysis of dissertation. *Library philosophy and practice*. <http://unllib.unl.edu/lip/>. [Accessed 28/3/2012].

Edwards, S. (1999). Citation analysis as a collection development tool: A bibliometric study of polymer science theses and dissertations. *Serials Review*, 25(1), 11-21.

Folster, M. (1995). Information seeking patterns:Social sciences. *Library users and reference service*. 32, 83-93. www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ50869. [accessed 03/06/2011].

Francis, H. (2005).The information seeking behaviour of social science faculty at the University of the West Indies, St. Augustine Campus. *Journal of Academic Librarianship*. 31(5), 67-72.

Gakobo, J. (1985).The role of the special collection in the academic library. *International Library Review*, 17, 405-17

Gall, M. D., Borg, W. R. and Gall, J. P. (1996). *Education research: An introduction* (6th ed.).White Plains, NY: Longman.

- Garfield, E. (1972). Citation studies as a tool in journal evaluation. *Science*, 178, 471-79. www.garfield.library.upenn.edu/essays/V1p527y1962-73.pd. [Accessed.28/11/2012].
- Garrett, M J. (2005) Inform Workshop Training materials finding references to journal articles: INFORM, Uppsala University Sweden.
- Gelfand, M.A. (1968). University Libraries for Developing Countries. UNESCO Manuals For Libraries Number 14. www.eric.ed.gov/ERICWebPortal/record. [Accessed. 03/06/2010].
- Gooden, A.M. (2001). Citation analysis of chemistry doctoral dissertations: An Ohio state university case study. <http://www.istl.org/01-fall/index.html>. [Accessed 18/8/2011]
- Griscom, R. (1983). Periodical use in a university music library: A Citation Study of Theses and Dissertations Submitted to the Indiana University School of Music from 1975-1980. *The Serials Librarian* 7 (3). <http://www.tandfonline.com/doi/pdf/> [25/3/2012]
- Gross, P.L.K. and Gross, E.M. (1927). College libraries and chemical education. *Science new series* 66 (1713),385-389. <http://www.jstor.org>. [Accessed.14/02/2011].
- Gupta,D.K.(2011). Electronic library and information systems.45 (2) www.emeraldinsight.com/journals.html.
- Harter, S.P. (1998). Scholarly communication and electronic journals: an impact study. *Journal of the American Society of Information Science*, 49 (6), 507-516.
- Haycock,L (2004). Citation analysisi of the education dissertations for collection development. *Library resources and technical services*.48(2).102-06.
- Heidenwolf,T. (1994). Evaluating an interdisciplinary research collection. *Collection management*. 18(3/4) 33-48
- Hurd,J.M.(1992). Interdisciplinary research in the sciences: implications for library organization. *College and Research Libraries* 53:283-97. <http://www.istl.org/refereed.html> [Accessed 6/08/2011].
- Iheaturu, A.M. (2002). Periodical use: a study through citations in students' projects at the Federal University of Technology, Owerri library. *Language and Librarianship Journal*. 1(2), 65-72.

- Iivonen, M, Ulla, N, Anu, V. and Tanja, H. (2009). Library collections contribute to doctoral studies: Citation analysis of dissertations in the field of economics and administration. *Library Management*. 30 (3), 185 – 203.
- Ingweesen, P. (2005). *The turn: Integration of information seeking and retrieval in context*. Dordrecht, Springer.
- Iya, A.I. (1996), A Citation study of Education dissertations at the University of Maiduguri, Nigeria. *African Journal of Library, Archives and Information Science*. 6 (2), 129-32.
- Joswick, K. and Stierman, J. (1997). The core list mirage: A comparison of the journals frequently consulted by faculty and students. *College and Research Libraries*. 58(1): 48-55.
- Kabamba, J.M. (1988). *Use Studies of Public Libraries: The Benefits of Community Based Information Service in Zambia Preliminary Report of a Pilot Study*. Lusaka. Institute for African Studies.
- Khosrojerdi, M. (2005). Citation analysis of MA psychological dissertations of Tehran University from 2001-2006. *Research on Issues of Education*. 5 (2), 95-114.
- Kraus, J.R. (2002). Citation patterns of advanced undergraduate students in biology, 2000-2002. *Science and Technology Libraries*. 22 (3/4), 161-179.
- Kuruppu, P.U. and Moore, D.C. (2008). Information use by PhD students in agriculture and biology: A dissertation citation analysis. *Portal: Libraries and the Academy* 8(4), 387- 403
- LaBonte K.B. (2005) Citation Analysis: A Method for Collection Development for a rapidly developing field. *Issues in Science and Technology Librarianship*.
<http://www.istl.org/refereed.html> [Accessed 6/08/2011].
- Lancaster, F.W. (1993). *If You Want to Evaluate Your Library*, 2nd ed., University of Illinois, Champaign.
- Lascar, C. and Mendelsohn, L.D.(2001). An analysis of journal use by structural biologists with applications for journal collection development decisions. *College and Research Libraries* 62(5), 422-433.
- Laura, N.M. (2011). Local citation analysis of graduate biology theses: Collection development implications issues in science and technology and librarianship.
<http://www.istl.org/refereed3.html>. [Accessed 6/8/2011].

- Leedy,P. and Ormrod,J.E. (2001). *Practical research: Planning and design* 7th ed. Upper saddle River, NJ.; Merrill Prentice Hall.
- Leshner, M. and Sylvia, M. (1995). What journals do psychology graduates use: a citation analysis of theses references. *College and Research Libraries*.56 (4), 313-18.
- Line, M. (1971) .The Information uses and needs of social scientists: An overview of INFROSS. *Aslib proceedings*. 23 (8). 412-34 <http://www.emeraldinsight.com> [18/08/2011].
- Lockett,B. (1989). *Guide to the evaluation of library collections*. Chicago, American Library Association.
- Longstaff, H.E.R. and Van Kampen, F.(2008).Collection analysis outcomes in an academic library. *Collection Building*, 27(3), 113-17. www.emeraldinsight.com/journals.htm. [Accessed. 16/08/2011].
- Luther, J. (2008), University investment in the library: what's the return?, paper presented at Library Connect Seminar, Québec, 13 August.
- McCain, K. and Bobick, J. E. (1981). Patterns of journal use in a departmental library: A citation analysis. *Journal of the American Society for Information Science* 32 (4): 257-267.
- Miyanda, E. Munzya (2010). Factors affecting utilization of electronic information resources and services by medical students at the University of Zambia. MA.Dissertation. Lusaka, University of Zambia.
- Mochida, P. (1976). Citation survey of education literature. *Hawaii Library Association Journal*, 33, 34. www.eric.ed.gov/ERICWebPortal/recordDetail. [Accessed.11/03/2010]
- Momoh, O. M. (1996).Subject analysis of postgraduate theses in library, archival and information science at Ahmadu Bello University, Zaria. *Library Focus* (13/14) 105-15.
- Musa, I.F. (2005). A review of two journals of library and information science in Africa. Ibadan, Nigeria, paper presented at the International Conference on Improving the Quality of Library and Information Science Journals in West Africa.
- Nabe, J. and Imre, A. (2008). Dissertation citations in organism biology at Southern Illinois University at Carbondale: Implications for collection development. *Issues in Science and Technology Librarianship*: <http://www.istl.org/08-fall/refereed.html>. [Accessed.18/8/.2011].

- Naudé, F., Rensleigh, C. and Du Toit, A.S.A. (2005). Analysis of the citation of Web based by UNISA academic researchers. <https://ujdigispace.uj.ac.za/handle/10210/3414>. [Accessed. 13/04/2011].
- Naushad, P.M.and Nisha, A.F. (2011). Use of e-journals among research scholars at Central Science Library, University of Delhi .*Collection Building*, 30 (1), 8. www.deepdyve.com/browse/journals . [Accessed. 28/11/2012]
- Nkiko, C. and Adetoro, N. (2007). Pioneer Bachelor Degree: Citation Analysis of Covenant University Students' Research Projects. *Library Philosophy and Practice*. <http://www.webpages.uidaho.edu/~mbolin/nkiko-niran.htm>. [Accessed.19/7/ 2011]
- Nosrat,R. (2010) A citation analysis study of MA dissertations in the library and information science field in universities in Tehran. *Library Review*,59 (1) 56-64 <http://www.ingentaconnect.com/content> [Accessed. 23/10/2011].
- Obokoh,N.P.(1985). First-degree research projects on education: characteristics of bibliographic citations. *Nigerian Library and Information Science Review*. 3(1/2),39-43.
- Oduwole, A. A. (2000).A citation analysis of agricultural theses accepted by University of Agriculture, Abeokuta, Nigeria. *Nigerian Library and Information Science Review*.18 (1-2)1-6.
- Ogunleye, G.O. (1996).Undergraduates use of research literature: A bibliographical citation analysis of science project reports accepted by a Nigerian University 1981- 1992. *Library Bulletin* 1 (2) 58.
- Ogunrombi,S.A. (1997). Serials selection and deselection: A survey of Nigerian University Libraries. *African journal of library archives and information science*.7(1),33-42.
- Okiy, R. B. (2003). A citation analysis of education dissertations at the Delta State University,Abraka,Nigeria. *Collection Building*.22 (4),158-61. <http://www.emeraldinsight.com> [Accessed 29/11/2011]
- Olatokun, W.M., and Makinde, O. (2009). Citation analysis of dissertations submitted to the Department of Animal Science, University of Ibadan, Nigeria. *Annals of Library and Information Studies* 56, 117-128.
- Omekwu,C.O. and Opeke, R.O. (2002), "Citation behaviour of undergraduate and postgraduate researchers: any difference?", *Lagos Librarian*. 23 (1-2), 6-14.

- Omekwu,C.O. and Popoola,S. (1991). Improving citation behaviour of university students in developing countries: A critical review of thesis literature at the University of Ibadan. *Library Bulletin*. 2 (1/2). 44-51.
- Onyancha,O.B.(2008). A citation analysis of sub-Saharan African library and information science journals using . [Http://: www. Google Scholar](http://www.Google Scholar). [Accessed.20/01/2012]
- Osborne,C.B.(1981). Marketing the collection development aspects of serials control. In serials collection development: choices and strategies (Sul,H.Lee ed.). AnArbor, Michigan; Pierin.
- Paisley, J.M. (1968). The information needs and uses of social scientists: an overview of INFROSS´. In Aslib proceedings: A study of the use of Information sources by social science researchers´. In Journal of academic Information needs.www.ifla.org [Accessed 27/9/2011]
- Pancheshnikov (2007). A comparison of literature citations in faculty publications and students theses as indicators of collection use and a background for collection management at a university library. *Journal of academic librarianship* 33 (6) 674-83.
- Rosy Jan (2009) <http://www.webology.org/2009/v6n1/a67.html> [5/8/2011].*Webology*, 6, (1).
- Royahi, H. (1997). Citation analysis study of doctoral dissertations in Arts and Humanities field among two universities in Tehran during 1991-1996”, unpublished project, Tarbiat Modares University, Tehran
- Said, (2006); Collection development and long term periodical use study: Methodology and implications. *Serials Review*.28.
- Sam, J. (2008). An analysis of papers published in the Ghana Library journal: A bibliometric study. *African Journal of Library Archives and Information Science* 18(1) 55.
- Satarino,W.A.J. (1978). Use in sociology: citation analysis versus readership patterns. *Library Quarterly*. 48(3), 293.
- Siamian,H.(2007),Nama(ElectronicJournal)www.irandoc.ac.ir/data/[accessed17th Aug,2011].
- Simui, M. and Kanyengo,C.W. (2001). An Investigation into the funding of University Libraries in Zambia´ unpublished report.
- Simui,M. (2004). The provision of Scholarly Information in Higher Education in Zambia. African Universities in the twenty first century. Volume II. Knowledge and Society.

- Slater, M. (1988), Social scientists information needs in the 1980s. *Journal of documentation*. 44 (3),226-37
- Slutz, M.J. (1997). A citation analysis of master's level English theses submitted to the Department of English-Kent State University, 1985-1995. Kent State University. http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage.pdf [16/06/2011]
- Smith, L. (1981). Citation analysis. *Library trends* 30 (1),83-105. www.emeraldinsight.com. [Accessed. 10/3/2012].
- Strohl, B. (1999). Collection evaluation techniques: a short, selective, practical, current, annotated bibliography, 1990-1998.Chicago:Reference and User Services Association, American Library Association.
- Swanepoel, A.(2008). Using citation analysis to determine the use of information sources in the humanities by postgraduate students in the health and biomedical sciences: A case study. IFLA.ConferenceProceedings.<http://archive.ifla.org/IV/ifla74/index.htm/124-Swanepoel-en.pdf>. [Accessed.1/09/2011].
- Sylvia,M.J. (1998). Citation analysis as an unobstrusive method for journal collection evaluating using psychology students research bibliographies. *Collection building*.17(1)20-8.
- Tenopir,C. (2008). Scholarly E-reading patterns in Australia,Finiland, and the United States: a cross country comparison. Paper presented to the 74th IFLA General Conference and Council 10-14th August, Quebec. www.ifla.org/IV/ifla74/index.htm. [Accessed. 25/9/2011]
- Tenopir,C. and King, D.W. (2003). Reading behaviour and online journals. Learned Publishing, 15 (4) 259-265. <http://www.ingentaconnect.com/content/> [25/3/2012].
- Thompson, J.W.(2002). The death of the scholarly monograph in the humanities? Citation patterns in literary scholarship. *Libri* 52, 121-136
- Tucker (1980).The development of research collections in the new university libraries in Britain. *Libri*, 30,79.
- Tunnon,J.,and Brydges, B. (2005). Improving the quality of University Libraries through citation mining and analysis using two new dissertation bibliometrics assessment tools. World Library and information Congress:71st IFLA General Congress 14-18 August. Oslo Norway. <http://www.ifla.org/iv/ifla71/programme.htm>. [Accessed 27/2/2012].
- University of Zambia Annual Report, (2005). Lusaka, University of Zambia

University of Zambia Library Technical Services Division: List of Current Periodicals (2010).
Lusaka, University of Zambia Library

Walcott, R (1991). Characteristics of citations in Geosciences doctoral dissertations accepted at United States academic institutions 1981-1985. *Science and Technology Libraries*.12(2).

Walcott, R. (1994). Local citation studies - a shortcut to local knowledge. *Science and Technology Libraries*. 14(3).

Walter, P. L. (1996). A journal use study: checkouts and in-house use. *Bulletin of the Medical Library Association*. 84 (4), 461–67.

Waugh, C. A. and Ruppel, M. (2004). Citation analysis of dissertation, theses, and research paper references in workforce education and development. *Journal of Academic Librarianship*. 30 (4): 276-284.

Williams,V.K. and Fletcher, C.L. (2006). Materials used by master’s students in engineering and implications for collection development: A citation analysis. *Issues in Science and Technology Librarianship*. <http://www.istl.org/06-winter/refereed1.html>. [Accessed 18/08/2011].

Zandian, F., Rezazadeh, E.and Hassanzadeh, M. (2007), Citation analysis study of doctoral Arts and Humanities dissertations in Tarbiat Modares University during 2001-2006.

Appendix I: Age of citation resources by format

Age	Conference paper	Journals	Manuscript	Monograph	Newspaper	Theses	Web resources	Other	Total
0	0	1	1	0	1	0	66	0	69
1	4	9	6	24	11	8	56	3	121
2	11	13	23	73	19	13	45	9	206
3	3	33	27	94	12	15	35	8	227
4	6	24	17	109	6	15	13	6	196
5	14	16	8	120	0	15	19	4	196
6	10	33	18	137	0	4	20	7	229
7	11	32	11	126	1	1	24	4	210
8	5	32	11	128	1	9	15	3	204
9	7	33	24	155	1	9	10	2	241
10	4	46	20	116	0	6	15	0	207
11	7	36	5	120	0	5	6	1	180
12	1	34	7	117	1	2	3	0	165
13	6	42	6	110	1	5	4	2	176
14	7	28	8	134	0	6	5	0	188
15	3	29	5	112	0	11	3	0	163
16	4	30	3	99	0	7	5	0	148
17	3	34	6	80	0	2	3	0	128
18	1	31	5	69	2	3	2	1	114
19	0	31	6	71	0	6	1	0	115
20	1	24	4	75	0	6	1	1	112
21	1	26	2	60	3	6	0	0	98
22	2	16	0	39	2	6	2	0	67
23	0	24	2	38	0	4	0	1	69
24	2	21	3	37	0	1	1	0	65
25	2	17	2	49	0	8	2	0	80
26	1	17	2	34	1	4	1	0	60
27	0	11	4	37	0	0	0	0	52
28	0	9	3	44	1	4	1	0	62
29	2	9	3	37	0	2	0	0	53
30	0	11	3	51	0	1	0	0	66
31	1	9	0	40	1	0	0	0	51
32	0	9	0	26	0	1	0	0	36
33	0	5	1	34	0	0	0	1	41
34	0	4	0	21	0	1	0	0	26
35	1	4	2	26	0	0	0	0	33
36	0	6	1	29	0	2	0	0	38
37	1	5	0	23	0	0	0	0	29
38	0	7	0	20	0	0	0	0	27
39	1	1	1	33	0	0	0	0	36
40	0	2	0	16	0	0	0	0	18
41	0	1	0	11	0	0	0	0	12
42	0	2	2	13	0	0	0	0	17
43	1	2	0	11	0	0	0	0	14
44	0	2	0	6	0	0	0	0	8
45	0	1	0	8	0	0	0	0	9

46	0	1	1	7	0	0	0	0	9
47	0	1	0	4	0	0	0	0	5
48	0	1	0	1	0	0	1	0	3
49	0	0	0	4	0	0	0	0	4
50	0	0	0	3	0	0	0	0	3
51	0	3	0	2	0	0	0	0	5
52	0	0	0	4	0	0	0	0	4
53	0	0	0	3	0	0	0	0	3
54	0	1	0	0	0	0	0	0	1
55	0	0	0	1	0	0	0	0	1
56	0	1	0	1	0	0	1	0	3
57	0	0	0	1	0	0	1	0	2
58	0	0	0	1	0	0	0	0	1
59	0	0	0	2	0	0	0	0	2
60	0	0	0	0	0	0	1	0	1
61	0	2	0	3	0	0	1	0	6
68	0	0	0	1	0	0	0	0	1
69	0	1	0	1	0	0	0	0	2
71	0	0	0	1	0	0	0	0	1
74	0	0	0	1	0	0	0	0	1
87	0	0	0	1	0	0	0	0	1
92	0	0	0	1	0	0	0	0	1
Total	123	823	253	2855	64	188	363	53	4722