Session 4

Getting to know databases

By the end of this session, students should be able to:

- ✓ *Understand the nature and purpose of databases*
- ✓ *Distinguish between different types of databases*
- ✓ *Identify key concepts in an information search*
- ✓ *Combine key concepts effectively*
- ✓ *Retrieve information by using different databases*

4.1.1 Introduction

To find information in books, you have already learned that you can use the index at the back of a book. Journals do not contain indexes, as do books. To find information in journals, you have to use a bibliographic index. Until a few years ago, indexes were only available in printed format. Because of the information explosion, however, traditional methods of information retrieval are no longer relevant. Computers influence almost every aspect of our lives. The information explosion and technological innovation have resulted in the development of electronic databases to unlock the wealth of information available in books and journals. However, not all information is retrievable via electronic databases. Printed indexes are still very useful for retrieving information from journals, especially information published before 1980.

According to the Encyclopaedia Britannica (1987:566) a database is "a collection of interrelated data (usually stored as computerized electronic files) meant to serve multiple purposes". A database can also be described as "an organized collection of information, usually pertaining to a particular subject".
There are many types of databases. The most common type you will encounter in the library is the online catalogue, Kovsiecat. This catalogue directs you to the books and journals that are available in the library. There are also other databases available that direct you to information available in books and journals that are not available in the UFS SASOL Library.

Not all databases give access to the same type of information. A few examples of different types of databases are:

- Bibliographic databases
- Full-text databases

- **Bibliographic databases**

Bibliographic databases comprise of records which refer to documents such as books, films, journal articles or reports and which contain information such as the name of the author, title of the document, publisher and year of publication. Bibliographic databases only refer you to the actual full-text of the article. They do not supply the article itself.

Below is an example of a bibliographic record from *Kovsidex.*

BOTHA, P.
Marxism-Leninism in Africa with specific reference to Angola and Mozambique: a lesson for the West
Southern African Freedom Review 1988 1(3) p. 13-27

- **Full-text databases**

Some databases supply the full text of a document instead of only the bibliographic reference or bibliographic reference and abstract. Because of the enormous storage capacity of CD-ROMs they can be used to store full-text databases. Even large sets of books such as encyclopedias can be stored on CD-ROM. An example of a full-text database is *Academic Search Full-Text and SA Law Reports* from Juta

Below is an example of a full text article from Academic Search:

Magazine: The Economist; October 17, 1998
Section: Euro Brief

SNAKES AND LADDERS

THE desire for currency stability in Europe dates back many decades, at least as far as the 19th-century Latin Monetary Union comprising France, Belgium, Switzerland, Bulgaria and Greece. From 1944 to 1973 stability was supplied by the Bretton Woods system of fixed exchange rates. When Bretton Woods was breaking down in the 1970s the Europeans devised a new system called the ``snake''. Participants' rates were fixed more rigidly than Bretton Woods required. But by the time of the snake's launch in April 1972, rising inflation made it a sitting target for speculators. Britain barely joined before being forced to let its currency float (ie, sink). Denmark did likewise. Italy went soon after. France left in 1974, returned, and left again.

4.1.2 Structure of a database

A database is the center of a computerized information system. A database consists of:

- files
- with records
- in a specific format.

Think of a database as a set of filing cabinets where information is stored in files contained in drawers. Each of the files contains all the information for each record, but it is sorted in different sequences. For instance, if you want to find information on a specific author, you will look in the drawer labeled author. On the other hand, if you want to search according to a specific subject, you will need to look in the drawer labeled subjects.

A database has a certain pattern just as books have a title page, contents, text and index. Each database has a collection of records and each record represents a different item. If you think of the Kovsie student database, all your details will form a record in that database. There will be similar records for every student. Each record is composed of fields that contain a piece of information about you, e.g. your surname, your first name, your address, your field of study, modules passed. Some fields are present for every single record, where other fields are only there when required, e.g. the modules completed can only be filled in once you have completed them.

UNISA. Search strategies and user's guide.

Below is an example of a record from a student database.

Student number	2000-134-1234
Surname	Friend
First names	Anton
Title	Mr
Address	34 Long Street Bayswater
City	Bloemfontein
Postal code	9301
Postal address	Box 333 Arboretum
Telephone number	444-234
Degree	B.A.
Year of registration	2000
Courses registered	ILK111 PSF112
Courses passed	BAS111

Fees	Paid
Language of correspondence	English

The record in a bibliographic database may have the following fields:

- accession number or register number
- author
- title of article/publication
- sub-title
- affiliation of author and work address
- source information e.g. type of publication, title, volume, date, pagination
- language of document
- ISSN/ISBN
- index terms/search terms
- abstract

TI: Analysis of Douglas-fir beetle population dynamics from aerial survey data using group size analysis.
AU: Randall-C
AD: Forest Health Protection, Coeur d'Alene, Idaho, USA.
SO: Forest-Health-Protection-Report -Northern-Region,-USDA-Forest-Service. 2000, No. 00-6, 15 pp.; 1 ref.
PB: Northern Region, USDA Forest Service; Missoula; USA
PY: 2000
LA: English
AB: Aerial survey maps for three north Idaho National Forests were collected for the past five years (1995-99) and the total number of groups with Douglas fir (Pseudotsuga menziesii) mortality (faded trees) attributed to Douglas fir beetles (Dendroctonus pseudotsugae) were counted for each Ranger District by size class (1-19, 20-99, 100-249, 250-499, 500-999, 1000-4999 and 5000+ faded trees). Beetle population dynamics as shown by the numbers of groups of trees killed by the pest are reported and discussed for each district. It is concluded that more information about the course of an outbreak can be obtained by considering size (numbers of faded trees) and abundance of groups of trees attacked by the beetle across the landscape, in addition to numbers of acres infested and numbers of faded trees traditionally reported.
DE: forest-pests; plant-pests; insect-pests; forest-trees; outbreaks-; aerial-surveys; analytical-methods; population-dynamics; agricultural-entomology
OD: Pseudotsuga-menziesii; Dendroctonus-pseudotsugae; Pinopsida-; arthropods-
GE: USA-; Idaho-
BT: Pseudotsuga; Pinaceae; Pinopsida; gymnosperms; Spermatophyta; plants; Dendroctonus; Scolytidae; Coleoptera; insects; arthropods; invertebrates; animals; North-America; America; Developed-Countries; OECD-Countries; Mountain-States-of-USA; Western-States-of-USA; USA
CC: KK100; FF620; ZZ332; ZZ900
CD: Forests-and-Forest-Trees-Biology-and-Ecology; Plant-Pests; Animal-Ecology; Techniques-and-Methodology
PT: Miscellaneous
UD: 20000705
AN: 20000610817

Most of the fields or data-elements are individually searchable.

4.1.3 Common characteristics of databases

To learn how to use every database available would be a daunting task and take a lot more time than this module allows. Databases, however, share some common characteristics. Learning these will allow you to search in new databases and expand your ability to find the information you need.

- **Scope**

  In order to obtain relevant documents or references to documents, you first have to determine the content of the database. You have to determine where the information on content is placed and what terms are used to inform you that the scope of the content can be found there. Unfortunately not all databases offer you information on their scope. The easiest way to find out which database to use for a particular topic, is to ask the librarian. You can also make use of the online help.

- **Online help**

  Most databases offer online help to explain how the system operates. This is the best place to learn about a database. The online help button is usually prominently displayed. The online help will tell you how to conduct searches, as well as what features the database offers.

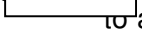
  Online help usually has a contents button as well as an index button. This corresponds with the parts of a book, so you will probably already know when to use which.

  Online help can be used to find answers to questions such as:
  How do I search this database?

  OR

  What type of information does this database contain?

- **Searching**

  Another concept to be considered when confronted with a database is how does one go about searching the database for information. Most windows-based databases offer a box like this  to accept search terms or to indicate field types. Different databases use different labels for these boxes. Terminology can range from "find" to "keyword" or "search for" or "go look" or even "describe what you are looking for". What is important though, is to look for the box in the top one-third of the page and not get confused by the different vocabulary used by each database vendor.

- **Keyword and controlled vocabulary**

Most databases allow you to search using either **keyword** or **controlled vocabulary**. There are similarities in the ways some databases present these search options, but again, the vocabulary used by one database vendor, may mean exactly the opposite in another database. *Key terms* in SA Studies, for instance, is used to search the controlled vocabulary while *subject* looks for the terms in all the fields of the record (in other words a keyword search). The term **natural language** is used by EBSCO to do keyword searches. Make sure that you know what terminology is used by the database you access for information.

- **Boolean operators**

The method for entering boolean searches differs from one databases to another, but they will essentially perform the same function. In some databases, you will have to type in the terms **AND** and **OR**, while in other databases you will have to use drop-down menus from which you can choose the relevant operator. Some databases default automatically to the **AND** operator, e.g. the Silverplatter databases (CAB, Medline, Allied health). This means that you only have to type in the different terms and the database will then change this to the relevant boolean statement. It is therefore very important to know which operator is the default connector of each database. Again you have to make sure which operators you may use in a specific database. The online help will indicate which operators you may use.

- **Basic and advanced search options**

Many databases will offer you a choice between basic and advanced searching. This choice allows you to decide how you wish to conduct your search. Again, different terminology will be used to describe these functions. **Basic** is also referred to as **novice**. **Advanced** may also be referred to as **expert**, while NISC (ERIC, SA Studies), for instance has **novice**, **advanced** and **expert** options.

- **Truncation and wildcards (* ? # $)**

Many databases offer you the ability to conduct searches with multiple spellings, various endings or terms that contain unknown characters. These features are known as **truncation** and **wildcard** searching. **Truncation** allows you to add a symbol to the root of a search term e.g. truncat* if you want to retrieve truncate, truncation and truncating (see also Session3). **Wildcards** allow you to place a symbol in the place that you would like the computer to make a substitute e.g. organi?ation to retrieve both organisation and organization.

- **Evaluation**

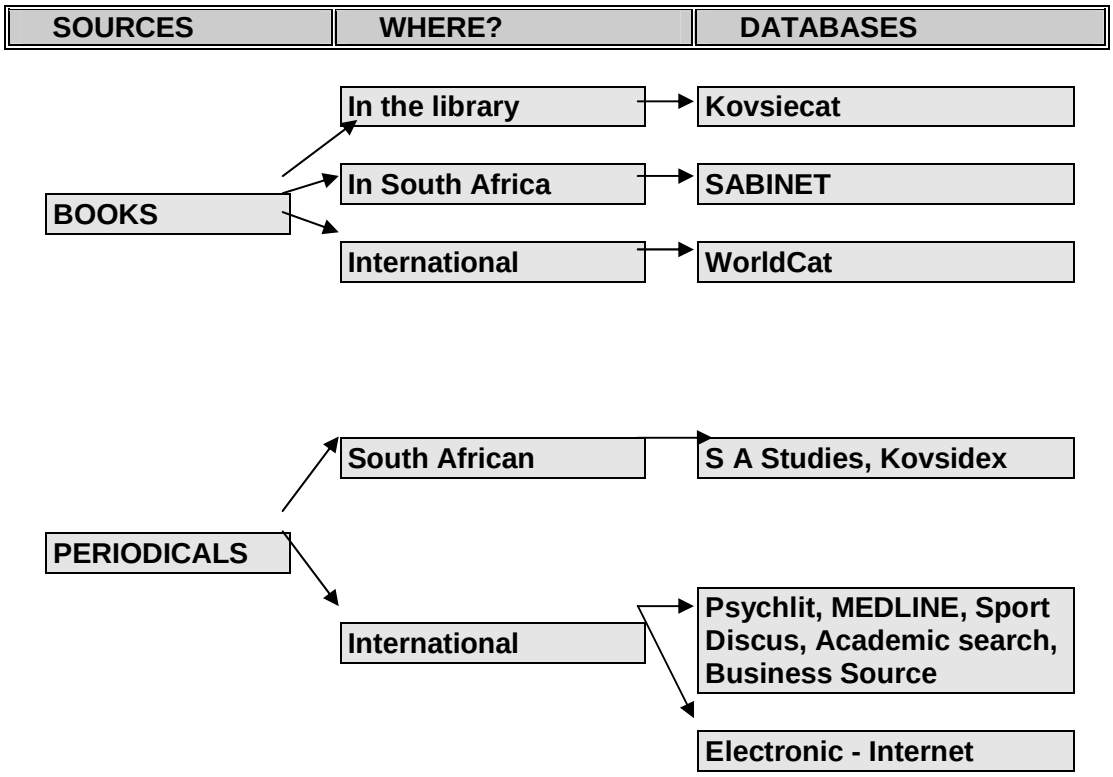
The last, but certainly the most important concept that you need to remember is that careful evaluation of all results is essential. Even though all the articles that are included in the database have gone through editorial scrutiny and in some cases peer evaluation, this does not mean that they will be relevant for your topic. Retrieving a lot of references that are not relevant to your topic means that you have to rethink the search terms that you have used to retrieve information, or even that the Boolean operators that you used were not correct. You will then have to start the whole process over again. But it will be worth the extra time and effort when you retrieve relevant results that will enable you to write an assignment of high quality.

4.1.4 Selection of a database

There are many databases available at present. Choosing an appropriate database is an essential part of research. You have to analyse your information need to determine which database will best provide the information you are looking for.

Different databases organise different types of materials. The library's catalogue for instance, indexes the books and periodicals available in the library. Some databases index citations for government documents, conference proceedings or journal articles. Other databases specialise in a particular subject. There are databases for education, business, medicine, agriculture - virtually every academic discipline is covered. There are also more general or multi-disciplinary databases available. The tables below give an indication of some of the databases that are available to Kovsie students.

- **According to type of source:**



- **According to subject:**

DATABASE	SUBJECTS COVERED
Academic Search	Multidisciplinary full-text information from journals
African Health Anthology	African Health Sciences information from journals
Business Source	Full-text business and economical information from journals
Butterworths law data-bases	Full-text South African legal information
CAB	Agricultural information from journals and books
Eric	Education information from books and journals.
Health Source	Full-text health sciences information
Iconda	Art and architectural information from journals and books
Kovsidex	Multidisciplinary. Mainly information from South African journals in the library's collection.
Kovsiecat	Multidisciplinary. Books and journal titles in the library's collection
Medline	Health Sciences information from journals
Nursing and Allied Health	Nursing and Allied Health information from journals
PsycLit	Psychological information from journals and books
Religion Index	Religious information
SA Studies	Multidisciplinary. Mainly information from and about South Africa.
Science Citation Index	Natural Sciences information from journals and books