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Upgrading search strategy skills: unit two: developing search strategies for CD-ROM encylopedias: a continuing professional development course for library and information service managers

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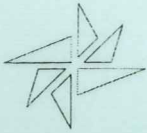
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PERTH WESTERN AUSTRALIA

Upgrading Search Strategy Skills

Unit Two

Developing Search Strategies for CD-ROM Encylopedias

A Continuing Professional Development Course
for Library and Information Service Managers

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Edith Cowan University

Table of Contents

03 EVALUATION OF INFORMATION RETRIEVAL FACILITIES OF A MULTI-MEDIA CD-ROM ENCYCLOPEDIA 31

04 HANDS-ON TUTORIALS - USING THE ENCARTA ENCYCLOPEDIA 37

INTRODUCTION

This Unit Two focuses on the development of search strategies in using CD-ROM encyclopedias. A thorough introduction to the basics of searching with Boolean logical operators is provided in Unit One. CD-ROM encyclopedia publishers not only update their products annually but some now provide monthly online updating facilities from the Internet. In this very dynamic environment it is rather difficult to evaluate their search facilities as improvements take place constantly.

The Unit develops strategies to take full advantage of the text and multimedia materials stored in the various indexes of an electronic encyclopedia, as well as methods for evaluating the strengths and weaknesses of its search engines from an information retrieval perspective. Hands-on experience will be an important part of this Unit. These exercises can be conducted independently by the user.

This Unit provides information professionals with skills and knowledge for the retrieval of required information in a multimedia encyclopedia environment.

Currently, there are a number of general multimedia encyclopedias on CD-ROM in the English language. These include:

1. Microsoft Encarta Encyclopedia. Redmond, WA: Microsoft. http://www.microsoft.com
2. Compton's Interactive Encyclopedia. Cambridge, MA: Softkey.
3. The Grolier Multimedia Encyclopedia. Danbury, CT: Grolier Interactive, Inc. http://www.grolier.com
4. WorldBook Multimedia Encyclopedia. Elk Grove Village, IL: WorldBook Educational Products.

Microsoft Encarta Multimedia Encyclopedia was chosen as an example for this second Unit, based on positive reviews found in journals.

This Unit consists of four modules. Students seeking accreditation are required to complete the assignment (Appendix 3) and submit it for assessment.

Microsoft Encarta Multimedia Encyclopedia (referred to from this point on simply as the Encarta Encyclopedia) has been chosen to illustrate the information retrieval facilities of an electronic encyclopedia. The Encarta Encyclopedia's knowledge base is the most recent edition of Funk &

Wagnall's 29 volume general encyclopedia. Therefore its content is only as authoritative, informative and up-to-date as Funk & Wagnall's main database.

Unit Outcomes

By the end of this Unit you should:

• understand the basic concepts involved in developing a search strategy in a multimedia CD-ROM encyclopedia environment;

• be able to apply the concepts of Boolean logical operators in constructing a search strategy;

• be able to determine which elements in the search strategy are essential key concepts;

• be familiar with the various approaches used in developing a search strategy;

• understand the concepts of precision and recall;

• appreciate the legal and ethical requirements of searching CD-ROM encyclopedias; and

• be able to apply evaluation techniques to assess the outcome of a search.

Library Competency Standards

This Unit addresses sections of competencies explained in Unit 49 (Level 6) *Provide clients with specialist and complex access to information,* Unit 28 (Level 5) *Provide clients with access to required information,* Unit 21 (Level 4) *Maintain accessibility of information* and Unit 17 (Level 4) *Contribute to client access to information* of the Library Competency Standards developed by Arts Training Australia.

Legal and Ethical Dimensions of Search Strategy Development Using CD-ROM Encyclopedias

It almost goes without saying that search strategy development in an electronic CD-ROM information retrieval environment has to take place within the parameters of copyright and intellectual property legislation. Although these two very important dimensions fall outside of the immediate instructional focus of this course, it is useful to point out that all search strategy development activities for this course should be conducted within the legal and ethical boundaries of accessing electronic database systems.

0 1 WHAT IS A SEARCH STRATEGY?

Do not complete this Module if you have successfully completed Unit One in this course. Please begin this Unit with Module 2.

Objectives

By the end of this module you should be able to:

● define a search strategy;

● identify the essential decision points in formulating a search strategy;

● understand the basic components of a search strategy;

● identify key concepts in an information request; and

● apply Boolean logical operators to combine the key concepts of a search statement.

Competency Standards

This part of Unit Two provides background information for some of the issues raised by units 49, 28, 21 and 17 of the Library Competency Standards developed by Arts Training Australia.

Introduction

Information retrieval systems are complex systems requiring specialised training. The process of translating an information request into the language of a computer in an online, CD-ROM or network environment is called developing a search strategy. Information retrieval systems operate on the principle of a set of matching functions taking place at high speed. The skill and knowledge of the searcher are the main determinants in obtaining the best results from an information retrieval system. A good searcher should have a variety of competencies. These fall into three main categories:

1. General principles of searching such as: a general knowledge of information retrieval; the nature of general encyclopedias; problem solving; search strategy formulation skills; and, evaluation of search results. However, human communication skills relating to reference interviews are not essential for this Unit as electronic encyclopedias, especially CD-ROM encyclopedias, are usually searched by end-users not by intermediaries.

2. System related skills - such as awareness of search software protocols, correct entry forms of search terms and establishing logical combinations of concepts.

3. Technical skills in the use of computers.

The Search Process

Regardless of the information retrieval environment - online, CD-ROM or World Wide Web - conducting a search contains several distinct stages such as clarifying the search request (this step usually is not necessary as users of CD-ROM databases are often end users), deciding on information sources or CD-ROM databases, translating the information request by identifying its key concepts, conducting the search and evaluating the results. In this section the emphasis will be on the translation of an information request and on the facilities of Boolean logic in retrieving information from a CD-ROM encyclopedia.

Translating the Information Request - Identification of Key Concepts

The search strategy performs two important tasks: it explicitly identifies the concepts in an information request, and it also explicitly states the relationships between those concepts. The latter task is made possible with Boolean logical operators.

The first step is to identify correctly the concepts in an information request. For example the statement of "I would like to find some information on the New Zealand Cricket Academy" is a simple search request containing only one concept: the New Zealand Cricket Academy. No other concepts are implied. Whereas, a request of "I am looking for information on breeding alligators" contains two concepts. Breeding and alligators need to appear in the same article. This is an AND relationship. An information request for "Articles on company intelligence or corporate intelligence" presents an OR relationship between concepts. Articles either on company intelligence or corporate intelligence will satisfy this search request.

Traditionally a standard search strategy form is used by searchers in developing a search strategy. All of the essential components of such a form are provided in Appendix 1. (This form can be copied to make additional forms, as a new form is necessary for each search request). Use this form to develop your search strategies.

ACTIVITY I

Indicate the number of concepts in the following information requests:

1. Find some articles on global warming caused by methane and chlorofluorocarbons released into the atmosphere.

2. Articles on freedom of speech and religious toleration.

3. Does the use of fossil fuels and clearing of tropical forests contribute to the greenhouse effect? Are there any articles in the encyclopedia on these topics?

4. Can you find any articles on censorship and the Internet?

5. Find some recent information on virtual reality.

Boolean Logical Connectors

Search strategy construction in the online, CD-ROM or the World Wide Web environment depend on Boolean logical operators. Boolean logic using AND, OR and NOT operators was first introduced by George Boole, the mathematician in 1847. Ironically, Boolean logic remains the main information retrieval tool since its introduction nearly one hundred and fifty years ago, in spite of advancements in information retrieval science. It represents symbolic relationships between concepts or sets. Relationships between concepts can also be viewed in pictorial form using Venn diagrams (See Figures 1 and 2). The Encarta Encyclopedia provides Boolean search facilities with **and, or** and **not** logical operators.

AND   logical operator, or connector, requires that identified search terms that it connects must be present in all documents. In other words, every keyword connected by an AND logical operator must be present for a record to qualify.

OR   logical operator, or connector, will retrieve documents containing either one or both of the search terms it connects. In other words, the occurrence of any one of the keywords connected by an OR logical operator will qualify the record to be retrieved.

NOT   logical operator, or connector, will eliminate any documents containing keywords connected by the operator.

Examples of Boolean logical connectors:

1. "I am looking for information on the World Wide Web and the Hypertext Markup Language" search statement has two concepts: World Wide Web and the Hypertext Markup Language as indicated in the following Venn diagram:

world wide web AND hypertext markup language

world wide web
www
web

hypertext markup
language
html

a   b
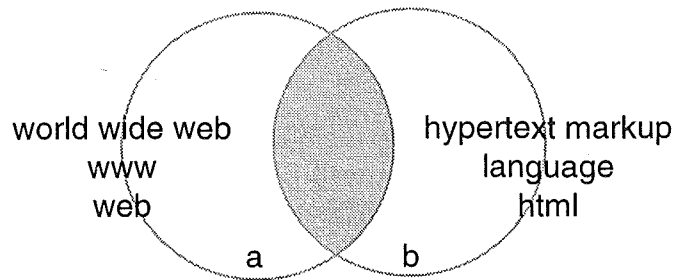
Figure 1

The shaded area of the Venn diagram represents items retrieved using the logical connector AND.

2. "Articles on Internet or World Wide Web" search statement is represented in **Figure 2** below:

Internet OR World Wide Web

The shaded area indicates the articles retrieved by this search statement.

internet

world wide web
www
web

a   b
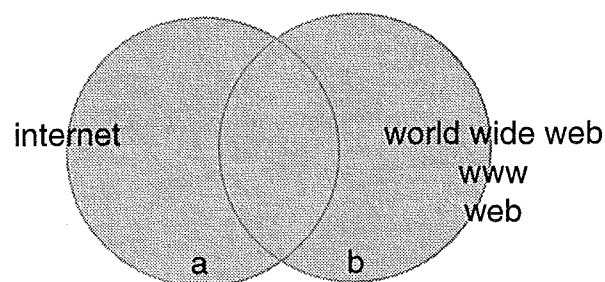
Figure 2

Nesting of Boolean Logical Operators

Nesting is the term used for the facility that allows a searcher to use several Boolean operators in the same sentence without creating any confusion. Nesting is possible by means of parentheses. Parentheses help to indicate the order of execution of logical connectors by the system. In the Encarta Encyclopedia it is possible to type on the search form a search expression using several Boolean operators and parentheses to make sure that the logical expression is clear. It is then possible to separate **ORs** from **ANDs** :

(a **OR** b) **AND** c

In this expression either terms a or b or both will be **ANDed** with the term c. Whereas this expression will be interpreted differently if it is expressed without the parentheses, thus giving a different result:

a **OR** b **AND** c

First, terms **b** and **c** will be **ANDed** as **ANDs** are normally executed before **ORs**. Please note that this rule is not stated anywhere in the documentation accompanying this encyclopedia; only by experimenting with various nested search statements has this fact been established. The database will then retrieve records containing either **a** or the intersection of **b** and **c**; or both **a** and the intersection of **b** and **c** depending on the use of parentheses.

Consider these two expressions:

(sun **OR** solar) **AND** energy
and
sun **OR** solar **AND** energy

In the first expression, records containing the concepts of sun or solar energy will be retrieved. The second expression is not correct as the computer will combine solar and energy, then it will retrieve records with only the sun concept.

Stopwords

In a retrieval system, although most of the words occurring in records are indexed, some very commonly occurring words are not. These are known as stopwords. In the Encarta Encyclopedia stopwords are not searched. The only information provided by the Encarta regarding stopwords is a warning message stating that an invalid search expression has been typed. For example, when a search statement containing a possible stopword such as

"by" is typed as in "management near by near objectives" (to search for articles on management by objectives) an error message appears.

NB: 'near' in the above statement is a proximity operator. This will be explained in the next module

ACTIVITY 2

Express the following statements by shading appropriate sections of Venn diagrams:
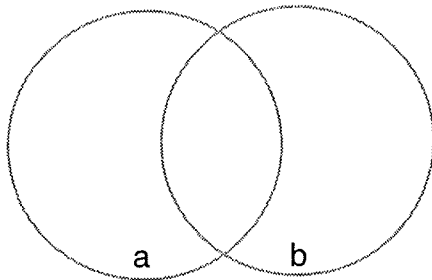
1.   a **OR** b

2.   (a **AND** b) **NOT** c
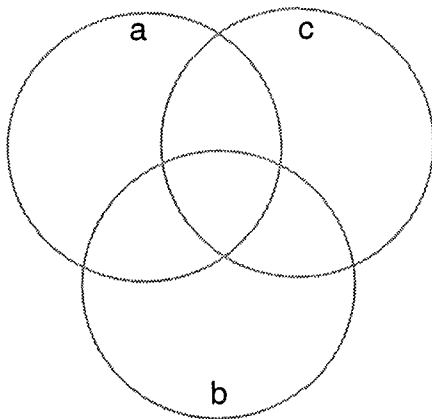
3.   (a **OR** b) **AND** c
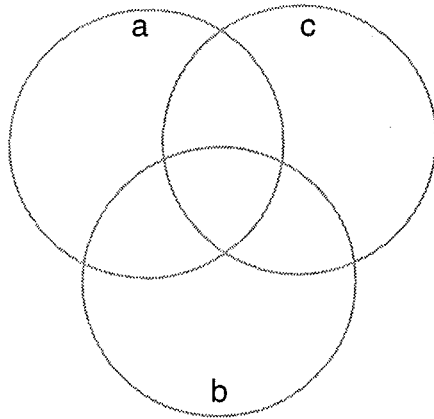
ACTIVITY 3

Express the following Venn diagrams as search statements using **a,b, c** or **d.**

Please note that the retrieved sections are the shaded portions.

1.
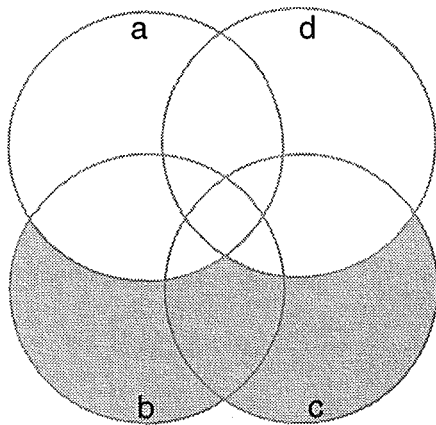
2.
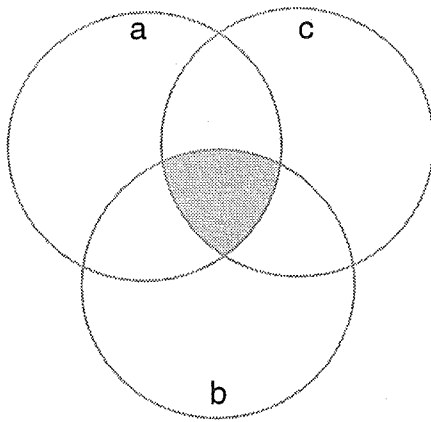
3.
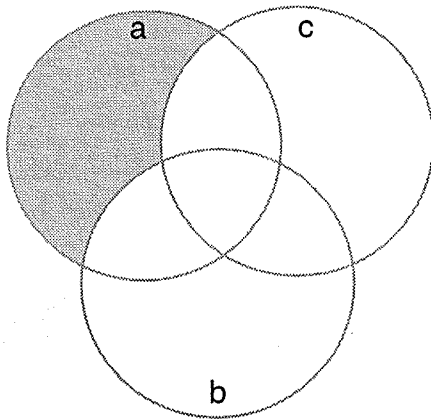
ACTIVITY 4

Express the search statements below using Venn diagrams.

1. Find an article about the Internet's e-mail services.

2. Locate articles on plant genetics but exclude any references to the wheat genetics.

3. Are there any articles written in the Encarta Encyclopedia about the greenhouse effect in Australia?

4. Find articles on tropical deforestation or rain forest deforestation in Australia.

5. Find some recent information on video games.

Summary

This Module establishes the basics of CD-ROM encyclopedia searching. It provides the grounds for two essential aspects of electronic database searching: Boolean logic and translating an information request to the language of a CD-ROM encyclopedia, taking the example of the Encarta Encyclopedia. These two dimensions of searching constitute the heart of retrieving information from CD-ROM encyclopedias.

02 WHAT IS CD-ROM SEARCHING?

Objectives

By the end of this module you should be able to:

- understand the basic concepts involved in developing a CD-ROM search strategy;

- identify the key concepts in a search query;

- be familiar with the strategies used for narrowing and broadening a search;

- understand the concepts of precision and recall; and

- appreciate the role of search filters in narrowing a search in a CD-ROM encyclopedia, such as the Encarta.

Competency Standards

This course addresses sections of competencies explained in Unit 49 (Level 6) *Provide clients with specialist and complex access to information,* Unit 28 (Level 5) *Provide clients with access to required information,* Unit 21 (Level 4) *Maintain accessibility of information* and Unit 17 (Level 4) *Contribute to client access to information* of the Library Competency Standards developed by Arts Training Australia.

Unit 17

Element   Performance Criteria

4   1,2,3

Unit 21

Element	Performance Criteria
1	1
2	4,5

Unit 28

Element	Performance Criteria
4	1,4

Unit 49

Element	Performance Criteria
2	4
3	6

Precision and Recall

The objectives of each search are different. Some search objectives call for a narrow search with very few but highly relevant records. Others will require a high number of records. In search strategy terminology this dichotomy is expressed as high precision versus high recall. High precision or high recall can be achieved by narrowing or broadening the search parameters. Maximising the retrieval of relevant records while minimising the retrieval of irrelevant records is described as maximising both recall and precision. However, there is often a negative correlation between achieving these objectives. In other words, if the precision is very high the recall will be lower; alternatively, if the recall is very high the precision will tend to be lower. The formulae below illustrate the ratios between recall and precision:

$$\text{Recall Ratio} = \frac{\text{Relevant Records retrieved}}{\text{Total relevant records in database}}$$

$$\text{Precision Ratio} = \frac{\text{Relevant records retrieved}}{\text{Total records retrieved}}$$

Strategies for Narrowing and Broadening a Search

Strategies for narrowing a search include the use of:

- More AND logical operators
- More proximity operators such as **near** between search concepts or the string searching facility;
- Specific terminology

Example:

If too many articles are retrieved by the statement below:

<div align="center">search near strategy</div>

try narrowing your search by expressing it as a phrase in quotation marks:
<div align="center">"search strategy"</div>

Strategies for broadening a search include the use of:

- Truncation
- More OR logical operators and fewer AND operators
- Broader terms
- Only the most essential concepts, i.e., fewer concepts

Example:

If too few articles are retrieved by the search statement:

<div align="center">information near literacy</div>

try broadening your search by adding similar concepts:

<div align="center">(information OR computer) AND literacy</div>

Truncation

Computers have the capacity to mask the stem or a portion of a word and to retrieve any character(s) in that masked space. This is called truncation. The Encarta Encyclopedia uses the asterisk (*) symbol for truncation. Most retrieval systems provide a truncation feature. Unfortunately truncation symbols vary in different CD-ROM encyclopedia systems. Truncation is a short cut expression of OR logic as it combines a variety of terms, any of which is acceptable, without spelling all the variations. The most common type of truncation is applied to the stem of a word.

For example **genetic*** as a truncated expression will retrieve the following:

genetic
genetical
genetically
geneticist
geneticists
genetics

Proximity or Contextual Operators

The facility to nominate positioning of the words and phrases in records is an added advantage in developing a search strategy. Contextual or proximity operators position terms or concepts in records. If you are trying to locate information on "information dissemination" the **AND** logical operator will not retrieve the most relevant items. What is needed is a proximity or a contextual operator to indicate that these two terms should be located next to each other in a prescribed order. Tools for this operation are called proximity operators. The exact terminology depends on the CD-ROM vendor system used. The Encarta Encyclopedia uses the **near** proximity operator.

information **near** flow

will retrieve these words when they occur adjacent to each other - read from left to right as well as read from right to left.

information flow

flow of information

Here the proximity operator **near** searches for the concepts information and flow occurring near to each other in any order. This multimedia encyclopedia does not state how many intervening words may come between these two terms.

Quotation Marks

Quotation marks are used for phrase matching or matching words in a phrase in the same proximity. This expression is also known as string searching. The facility of string searching is especially useful in dealing with stopwords such as in: "management by objectives" and "wash and wear". In this case the quotation marks mask the "and" in "wash and wear" to prevent confusion with the Boolean logical operator **AND** and therefore operate in a similar way to the **near** proximity operator.

Search Tools of the Encarta Encyclopedia: the Wizard and the Pinpointer

Searching With Find Wizard

The Encarta Encyclopedia offers two main search mechanisms: Pinpointer, a refined retrieval system, and the Find Wizard, a simpler and cruder search tool.

The Wizard button is located at the bottom of the Pinpointer. The Find Wizard provides an easier method of searching the database of the Encarta Encyclopedia using a simple search form. It provides the user with a search strategy form with a single dialogue box - with an instruction such as:

> "Enter a word and press find to see a list of articles containing that word"

However, it is possible to enter a full search strategy statement here:

- containing nested multi Boolean logical operators
- a string of words within quotation marks; and
- containing the **near** proximity operator.

Wizard and Search Refining Filters

Wizard, like Pinpointer, provides a search narrowing feature with four filters. They are:

- Category Filter
- Media Filter
- Time Filter
- Place Filter

Category Filter

The Category filter acts like a subject classification filter with nine very broad categories:

- Physical Science & Technology
- Life Science
- History
- Social Science
- Geography
- Religion & Philosophy
- Art, Language & Literature
- Performing Arts
- Sports, Hobbies & Pets

The Find Wizard lists these categories on the search form with boxes for ticking. More than one category can be selected. The category form can be arrived at simply by clicking on the **next** button of Find Wizard's search form screen. For example, in order to find out what is available on polio vaccine in the Life Science category:

- open Find Wizard by clicking on the Wizard button
- type "polio vaccine" into the dialogue box in the form provided
- click on the next button and select category icon
- select Life Science category
- click on the find button.

Two articles are retrieved by this search on "Immunization" and "Poliomyelitis".

Media Filter

The Media filter in Find Wizard provides a choice of six media filters:

- Videos
- Charts and Tables
- Animations
- Maps
- Pictures
- Sounds
- InterActivities
- Any media

The Encarta Encyclopedia offers a limited number of interactive programs called InterActivites. For example, "natural wonders" is such an InterActivity in the form of a game. The Encarta Encyclopedia (1996) explains that: "The object of this game is to match all 20 natural wonders to their locations on the map". This game provides instructions and hints for users. Another example of InterActivity can be found in articles dealing with orbits. In this InterActivity users are provided with many interactive features such as creating an orbit and setting its velocity or direction.

Select one or more appropriate media filters by clicking on their icons. Retrieved articles can be viewed by clicking on the **find** button after selecting the appropriate filter categories. The menu box shows all the retrieved articles by their titles. At the bottom of this menu box a **list status** indicates the number of articles retrieved. More importantly, this box shows which filters are active.

To find out what illustrated material is available on the topic of "polio":

- type "polio" in the dialogue box
- click on the next button until the media category screen is reached
- select "Any media" icon

This search located three articles with illustrations: Immunization; Roosevelt, Franklin Delane; and Salk, Jones Edward.

Time Filter

The Time filter is another search narrowing facility. A search can be narrowed to a specific year or a range of years. The Find Wizard's search form provides two options:

Only those articles related to the year ☐
Only those articles related to the years between ☐ and ☐

There is also a provision for choosing BC or AD in either category.

Place Filter

The Place filter narrows a search by limiting it to a specific place. The Find Wizard's place category asks the user to enter the name of a place and to press the find button to retrieve a list of articles containing that place. For example, as the word **australia** is typed in the dialogue box a list of place names scrolls. Two entries appear - Australia (continent) and Australia (country). Thus, the user can simply type a place name or select it from the list of countries provided in this filter's menu box.

Pinpointer's Search Facilities

Pinpointer, the main search tool of the Encarta Encyclopedia, is capable of searching text and media. Pinpointer can be opened from the Home screen by clicking on the **find** button. Pinpointer lists all the articles contained in this encyclopedia by title. Articles can be opened by two means: (1) by clicking on the chosen title or by moving the down arrow to a title shown in Pinpointer's open menu window; or (2) by typing a possible title word(s), as a short-cut measure into the text box at the top of the right-hand screen and just below the box that states: **Type in an article title word**. As the title words are typed, Pinpointer's alphabetical list scrolls to the typed word(s).

Pinpointer and Search Refining Filters

Pinpointer's five search filters, represented by icons, e.g., a globe for place and a sundial for time, provide search refinement and search narrowing facilities for its search engine. They are:

- Word Search
- Category
- Media
- Time
- Place

Word Search

The Word Search Filter provides two essential information retrieval functions: (1) it searches concepts by Boolean searching; and (2) it can also search articles by word proximity. To conduct a word search open Pinpointer and apply the Word Search filter by clicking on the Word Search icon. A search form with the following choices appears:

- A single concept, single word search
- Search of two phrases enclosed in quotation marks which are **and**ed. As stated earlier, it is possible to include stopwords, and's and or's within quotation marks.

For example:

"wash and wear" **and** "dyes in fabrics"

(*and* in the first phrase is not searched as the logical **and**. In the second phrase, *in* will be searched although it is usually a stopword.)

"Enter a search string box" provides the widest choices in creating a search strategy. Here a full search strategy can be entered with multiple Boolean commands nested for creating a clearer meaning. This search option provides a hint (or help) box which explains search rules regarding quotation marks, Boolean logical connectors (**and, or** and **not**) and the **near** contextual operator.

ACTIVITY 5

Identify the key concepts in the information query below and connect them with appropriate logical connectors.

Are there any articles about research conducted on dolphins?

Key Concepts

Search Strategy:

Category Filter

The Category filter acts like a subject classification filter with nine very broad categories called **Area of Interest**:

- Physical Science & Technology
- Life Science
- History
- Social Science
- Geography
- Religion & Philosophy
- Art, Language & Literature
- Performing Arts
- Sports, Hobbies & Pets

Each of the "areas of interest" is further divided into narrower categories. For example, the Geography category offers the following sub-categories:

- All categories
- Countries
- Mountain Ranges, Peaks & Landforms
- Rivers, Lakes & Waterways
- Oceans & Seas
- U.S. States, Territories & Regions
- Canadian Provinces & Cities

- Regions of the World, Towns & Villages
- World Cities, Towns & Villages
- Parks & Monuments
- Maps & Mapmaking
- Exploration & Explorers

Media Filter

The Media filter in Pinpointer provides a choice of six media filters:

- Pictures
- Maps
- Animations
- InterActivities
- Videos
- Charts and Tables

Time Filter

The Time filter is another search narrowing facility. A search can be narrowed to a specific year or a range of years; the timeline chart is displayed when this filter is selected. Dates can be typed in or the timeline dragged to a specific year or a range of years.

Place Filter

The Place filter narrows a search by limiting it to a specific place:

- regions
- countries
- political subdivisions
- cities

The user can also simply type a place name or select it from the list of countries provided in this filter's menu box.

Retrieved articles can be viewed by clicking on the **find** button after selecting appropriate filter categories. Pinpointer's menu box shows all the retrieved articles by their titles. At the bottom of this menu box a **list status** indicates the number of articles retrieved. More importantly, this box shows which filters are chosen by the user.

Media Pinpointer

The Media Pinpointer, located in the Media Gallery, operates in a similar fashion to Pinpointer. It can be searched alphabetically, simply by typing a media title. A search can be conducted with the more sophisticated Word Search option. It is also possible to narrow a search by applying following four filters:

- Category
- Media
- Time
- Place

Attached to each retrieved article's title, in Media Pinpointer's menu, there is a small icon identifying the type of media involved such as:

- a picture
- a map
- an animation
- a sound
- an interactivity
- a video
- a chart or a table.

Evaluation of CD-ROM Search Strategy Development Results

Evaluation of search strategy development results is crucial for the success of the CD-ROM information retrieval process. The result of a search needs to be assessed not only in terms of its success in meeting an information need but also for the validity and reliability of the information obtained. In the case of CD-ROM multimedia encyclopedias, like the Encarta Encyclopedia, validity and reliability of the base database, i.e., Funk & Wagnall general encyclopedia as well as any additional graphical video or audio databases added to it needs to be evaluated.

Summary

This second Module investigates some of the most important features of CD-ROM encyclopedia searching such as:

- precision and recall
- truncation
- narrowing and broadening a search
- proximity or textual operators
- search tools of the Encarta Encyclopedia: Pinpointer and the Wizard
- searching with category, media, time and place filters
- Find Wizard, Pinpointer's Word Search and Media Pinpointer

The evaluation process is identified as one of the most important components of search strategy development.

03 EVALUATION OF INFORMATION RETRIEVAL FACILITIES OF A MULTI-MEDIA CD-ROM ENCYCLOPEDIA

Objectives

By the end of this module you should be able to:

- understand the basic components of evaluative criteria applicable to CD-ROM encyclopedias; and

- apply such a set of criteria to evaluate the Encarta Encyclopedia.

Competency Standards

This course addresses mainly the competencies explained in Unit 49 (Level 6) *Provide clients with specialist and complex access to information*, Unit 28 (Level 5) *Provide clients with access to required information*, Unit 21 (Level 4) *Maintain accessibility of information* and Unit 17 (Level 4) *Contribute to client access to information* of the Library Competency Standards developed by Arts Training Australia.

Unit 17

Element	Performance Criteria
4	1,2,3

Unit 21

Element	Performance Criteria
2	5

Unit 28

Element	Performance Criteria
4	1,4

Unit 49

Element	Performance Criteria
2	4
3	6

Introduction

There are two important issues in evaluating a CD-ROM multimedia encyclopedia.

(1)   How good is its main knowledge base and how current is its information?

(2)   How good is its information retrieval mechanism?

The Encarta Encyclopedia, as stated earlier, is based on Funk & Wagnalls Corporation's 29 volume general encyclopedia. Kenneth Kister's (1994) encyclopedia evaluation guides can be checked to discover how Funk & Wagnalls is rated.

Information Retrieval Capabilities of an Electronic Encyclopedia

An electronic encyclopedia is as good as its search mechanism, to a large extent. An ideal information retrieval facility should have the following capabilities:

- full Boolean searching
- full contextual (full-text) searching facility. Provision for setting limits of proximity between terms, e.g., near 2 (meaning up to two

intervening words between terms - read from left to right as well as
from left to right)

- truncation - both right-hand and internal truncation, e.g.,
organi*ation* to retrieve: organisation, organization, organisational,
organizational, organisations and organizations

- meaningful hypertext/hypermedia links/hotlinks connecting related
items in the database

- availability of a good thesaurus and dictionary support

- availability of search options by limiting concepts (or terms) to text,
multimedia, by date and by place

- good help screens for search strategy development

- provision of a good manual explaining search strategy development
facilities

- provision of bookmarks

- a transparent search path

- provision of dual search mechanisms for novice and experienced
searchers

- flexible search outputs and their easy manipulation - such as a
printing option for articles in outline format; downloading, cutting
and pasting

- networking ease

- frequent online updating (of text/media/bibliographical references,
etc.) from the Internet as well as a high percentage of annual updating
of articles - Encarta's annual updating percentage for the whole
database is around 40%

- availability of dates under articles (showing when last revised)

- innovative approaches to searching

The Encarta Encyclopedia falls short in several areas indicated above. For
example, it offers only a limited proximity searching facility and no
internal truncation option.

The Encarta Encyclopedia's latest version was criticised for its incomplete
hotlinks between articles. For example, it was pointed out that there are no
links to articles carrying illustrations of African rhinoceros, the peregrine
falcon and the whooping crane from an article on endangered species. The
endangered species article lists these animals but does not provide links to
them - "Nor are they listed in the related-articles list in the endangered
species entry" (Jacso, 1996: p.29).

Information Retrieval Facilities of the Encarta Encyclopedia

Random access browsing of article titles	A-Z or Z-A
Atlas & pronunciation help	Searching of locations
Timeline	Searching of events across timeline
Find Wizard	Boolean searching(Titles, full-text, multimedia) Narrowing by filters
Pinpointer	Boolean searching (Titles, full-text, multimedia) Narrowing by filters
Media Pinpointer	Boolean searching multimedia Narrowing by filters

ACTIVITY 6

Design an evaluative checklist and rate the most recent edition of the Encarta Encyclopedia against this list.

Summary

The third Module of this Unit discusses the elements of evaluative criteria for general encyclopedias on CD-ROM. The Activity exercise provides an opportunity for its application to the Encarta Encyclopedia.

References

Jacso, P. (1996). State-of-the-art multimedia in 1996: the 'big four' general encyclopedias on CD-ROM. *Computers in Libraries,* 16 (4) April 1 p.29

Kister, K. (1994). Kister's best encyclopedias: a comparative guide to general and specialized encyclopedias. Phoenix: Oryx Press.

04

Hands-On Tutorials - Using the Encarta Encyclopedia

Objectives

By the end of this module you should be able to:

- develop a CD-ROM search to meet an information need;

- apply necessary database search refinement facilities; and

- evaluate the search results.

Competency Standards

This course addresses sections of competencies explained in Unit 49 (Level 6) *Provide clients with specialist and complex access to information,* Unit 28 (Level 5) *Provide clients with access to required information,* Unit 21 (Level 4) *Maintain accessibility of information* and Unit 17 (Level 4) *Contribute to client access to information* of the Library Competency Standards developed by Arts Training Australia.

Unit 17

Element	Performance Criteria
4	1,2,3

Unit 21

Element	Performance Criteria
2	5

Unit 28

Element	Performance Criteria
4	1,4

Unit 49

Element	Performance Criteria
2	4
3	6

Introduction

This Module is entirely based on hands-on tutorial exercises using the most recent edition of the Encarta Encyclopedia.

Hands-on Exercises

ACTIVITY 7

Conduct three searches using **and, or** and **not** Boolean operators. Make evaluative comments on the outcomes of your searches.
Use Pinpointer's Word Search facility for this exercise.

ACTIVITY 8

Apply a search refining filter (such as time or place) to the above Boolean logic based exercises. If necessary construct new searches to utilise these search filters.

ACTIVITY 9

Using Pinpointer's Word Search facility develop a search strategy using the **near** contextual operator.

ACTIVITY 10

Using Pinpointer's Word Search facility develop a search containing two phrases or strings of words within quotation marks. Combine them with an **and** logical operator.

Search Example:
"strategic arms limitation talks" **and** "nuclear warheads"

ACTIVITY 11

Experiment with the Atlas and Timeline search platforms of the Encarta Encyclopedia by constructing appropriate search statements.

Evaluate your search results. If necessary refer to *Information Retrieval Capabilities of an Electronic Encyclopedia* and *Information Retrieval Facilities of the Encarta Encyclopedia* (Module 3).

Summary

The Module Four provides hands-on tutorial exercises. Some of these exercises in Module Four will be submitted for assessment. See Appendix 3: **Assessable Assignment** for further details.

A Select Bibliography

Burg, B. and Tallent, E. (1996). Publisher personalities or Jekyll andHyde in your drive. *Searcher,* 4(1) Jan p.43(3)

Clements, J. and Nicholls, P. (1996). A comparative survey of multimedia CD-ROM encyclopedias. *Computers in Libraries,* 15 (8) Sept p.53-59

Goodwin, M. (1995). Living in the state of digital encyclopedia. *PCWorld,* 13(3) Mar p.325(1)

Holzberg, C. S. (1996).Worlds to discover: geography software helps students explore the globe. *Electronic Learning,* 15(4) Jan-Feb p.44(4)

Jacso, P.(1996).Databases: Peter's picks & pans. *Database,* 19 (1) Feb/Mar p.101-4

Jacso, P. (1996). State-of-the-art multimedia in 1996: the 'big four' general encyclopedias on CD-ROM. *Computers in Libraries,* 16 (4) April 1 p.26-32.

Kister, K. (1994). *Kister's best encyclopedias: a comparative guide to general and specialized encyclopedias.* Phoenix: Oryx Press.

Meloche, J. (1994). *Introductory CD-ROM searching: the key to effective ondisc searching.* New York: The Haworth Press

Mooney, S. (1996). Britannica CD. *PC Magazine,* 15(6) 26 Mar p.309(2)

Mooney, S.(1996). Compton's Interactive Encyclopedia, 1996 edition. *PC Magazine,* 15(6) 26 Mar p.310(2)

Mooney, S. (1996). Microsoft Encarta 96 Encyclopedia. *PC Magazine,* 15(6) 26 Mar p.318(3)

Mooney, S.(1996).Multimedia encyclopedias: Just the facts? *PC Magazine,* 15(6) 26 Mar 26 p.305(11)

Oliver, R.(1996).The influence of instruction and activity on the development of skills in the usage of interactive information systems. *Education for Information,* 14 (1) Mar p.7-17

Richardson, D. (1996). Just the facts: CD-ROMs vs. the Internet. *PC World*, 14 (6) June p.235(7)

Roberts, S. L.(1996). World Book Multimedia Encyclopedia. *PC Magazine*, 15(6)6 Mar 26 p.327(2)

Shoemaker, J.(1995). The bottom line: are CD-ROM encyclopedias worth the cost?*School Library Journal* , 41 (2) Feb p.28-31

Schofield, J. (1995).Knowledge that knows no bounds. *The Guardian*, Nov 16 p.S4(1)

Spangler, T. (1996).1996 Grolier Multimedia Encyclopedia. *PC Magazine* , 15(6) 26 Mar p.324(2)

Valauskas, E. J.(1996).Britannica CD 2.0 sets new standards. *Database*, 19 (1) Feb/Mar p.70-3.

White, R. (1996). All the world on CD-ROM. *PC/Computing*, 9(2) Feb p.91(1)

Appendix I

CD-ROM Encyclopedia Search Strategy Development Form

Search request (expressed in a sentence):

Concept One	Concept Two	Concept Three
	AND	AND
OR		
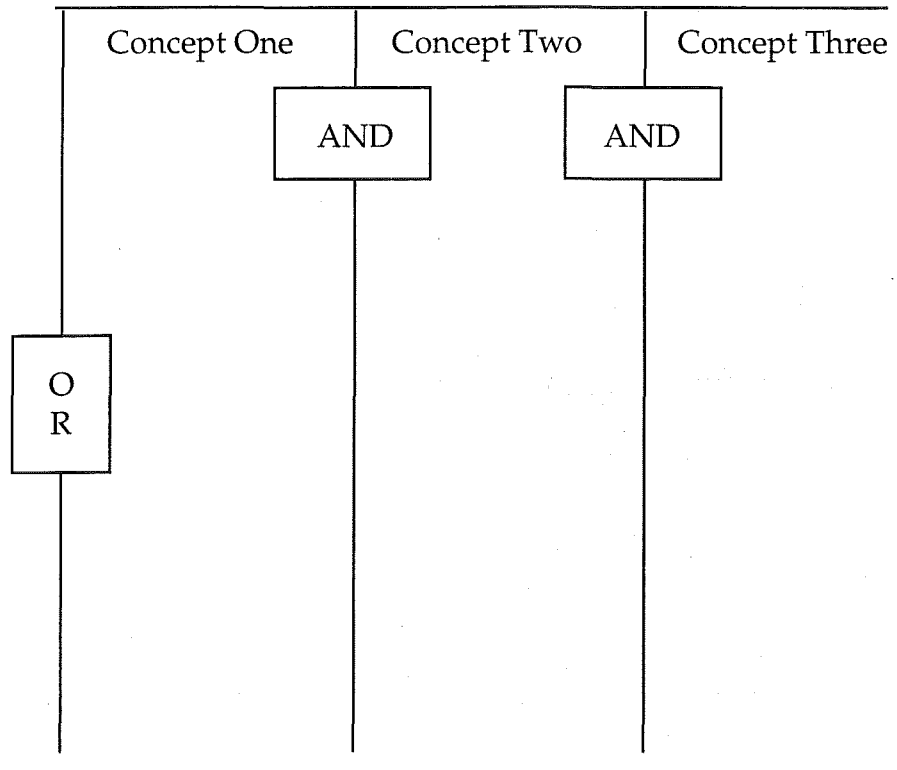
Search strategy

Appendix 2

Answers

01   What is a Search Strategy?

ACTIVITY 1

Indicate the number of concepts in the following information requests:

1.   Find some articles on global warming caused by methane and chlorofluorocarbons released into the atmosphere.

Concept 1	Concept 2	Concept 3
global warming	chlorofluorocarbons	
greenhouse effect	etc.	
ozone depletion		
etc.		

2. Articles on freedom of speech and religious toleration.

Concept 1	Concept 2	Concept 3
freedom of speech	religious toleration	
etc.	etc.	

3.   Does the use of fossil fuels and clearing of tropical forests contribute to the greenhouse effect? Are there any articles in the encyclopedia on these topics?

Concept 1	Concept 2	Concept 3
fossil fuels	tropical forests	greenhouse effect
fuels	rain forests	ozone depletion
etc.	etc.	etc.

4. Can you find any articles on censorship and the Internet?

Concept 1	Concept 2	Concept 3
censorship	internet	
etc	world wide web	
	web	
	www	
	etc.	

5. Find some recent information on virtual reality.
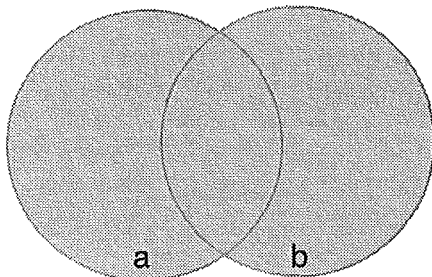
Concept 1	Concept 2	Concept 3
virtual	reality	

ACTIVITY 2

Express following statements by shading appropriate sections of Venn diagrams:

1. a **OR** b

2. (a **AND** b) **NOT** c
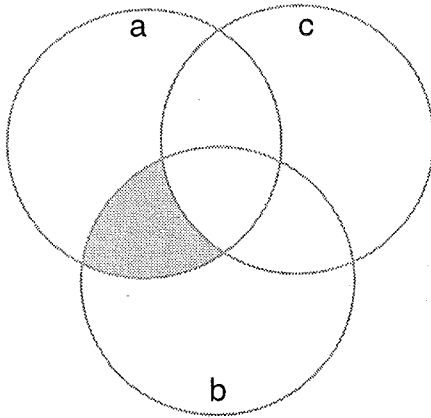
3. (a **OR** b) **AND** c
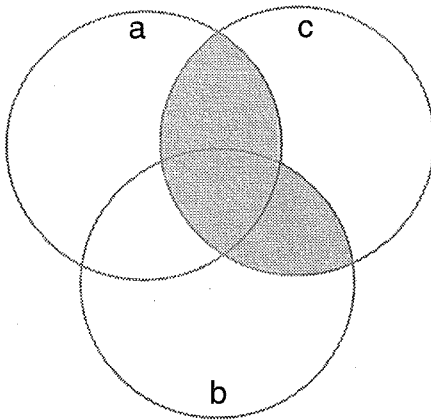
ACTIVITY 3

Express the following Venn diagrams as search statements using **a,b, c** or **d.**

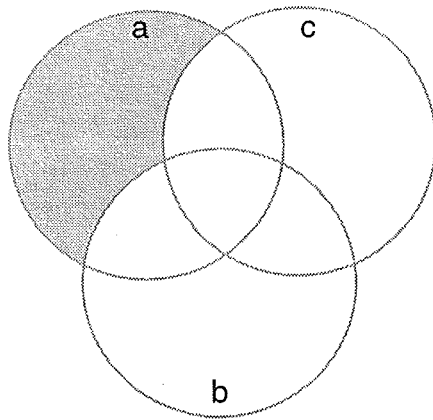**Please note that retrieved sections are the shaded portions.**

1.   (b **OR** c) **NOT** (a **OR** d)
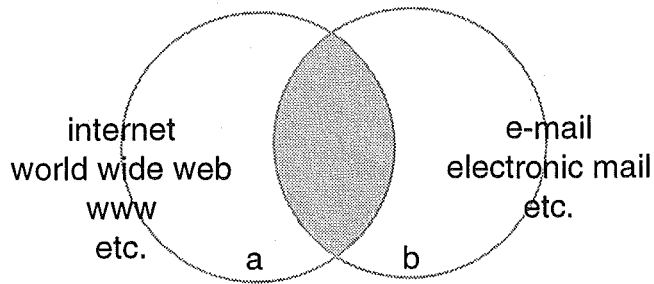

2.   a **AND** b **AND** c
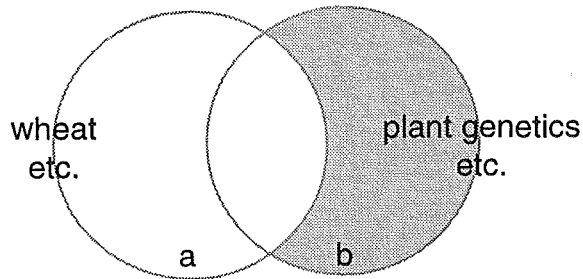
3.   a **NOT** (b **OR** c)

ACTIVITY 4

Express the search statements below using Venn diagrams.
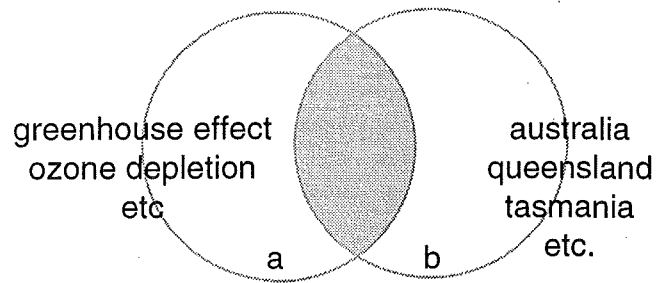
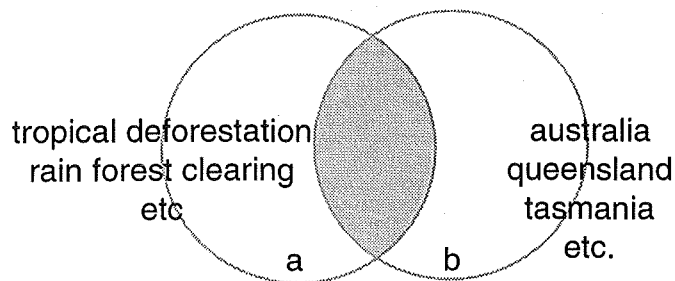1.   Find an article about the Internet's e-mail services.

2.   Locate articles on plant genetics but exclude any references to the wheat genetics.

3. Are there any articles written in the Encarta Encyclopedia about the greenhouse effect in Australia?

greenhouse effect
ozone depletion
etc.

a   b

australia
queensland
tasmania
etc.

4. Find articles on tropical deforestation or rain forest deforestation in Australia.

tropical deforestation
rain forest clearing
etc.

a   b

australia
queensland
tasmania
etc.

5. Find some recent information on video games.

video   games

a   b
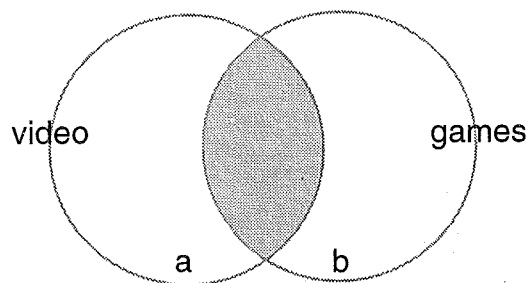
02 WHAT IS CD-ROM SEARCHING?

ACTIVITY 5

Identify the key concepts in the information query below and connect them with appropriate logical connectors

Are there any articles about research conducted on dolphins?

Key concepts:

Concept 1	Concept 2
dolphin	research
dolphins	study
studies	
project	
projects	

Search Strategy:

dolphin* and (research* or stud* or project*)

ACTIVITIES 6 - 11

These are designed to be hands-on activities. The results will vary. Those which relate to the use of the multimedia encyclopedia can contribute to the Assessable Assignment described in Appendix 3.

Appendix 3

Assessable Assignment

The assessable assignment for Unit Two Developing Search Strategies for CD-ROM Encyclopedias has two sections: hands-on tutorial exercises and the evaluation of these exercises.

1. Send the printed results of <u>any three</u> of the hands-on tutorial exercises provided in Module Four of this Unit.

2. Accompany the search results with an evaluation of these searches in the context of information retrieval facilities of a CD-ROM encyclopedia.

The length of the evaluation section should be approximately 500 words.