

— Bachelor's seminar

Information retrieval



Aalto-yliopisto
Aalto-universitetet
Aalto University

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10th June 2021

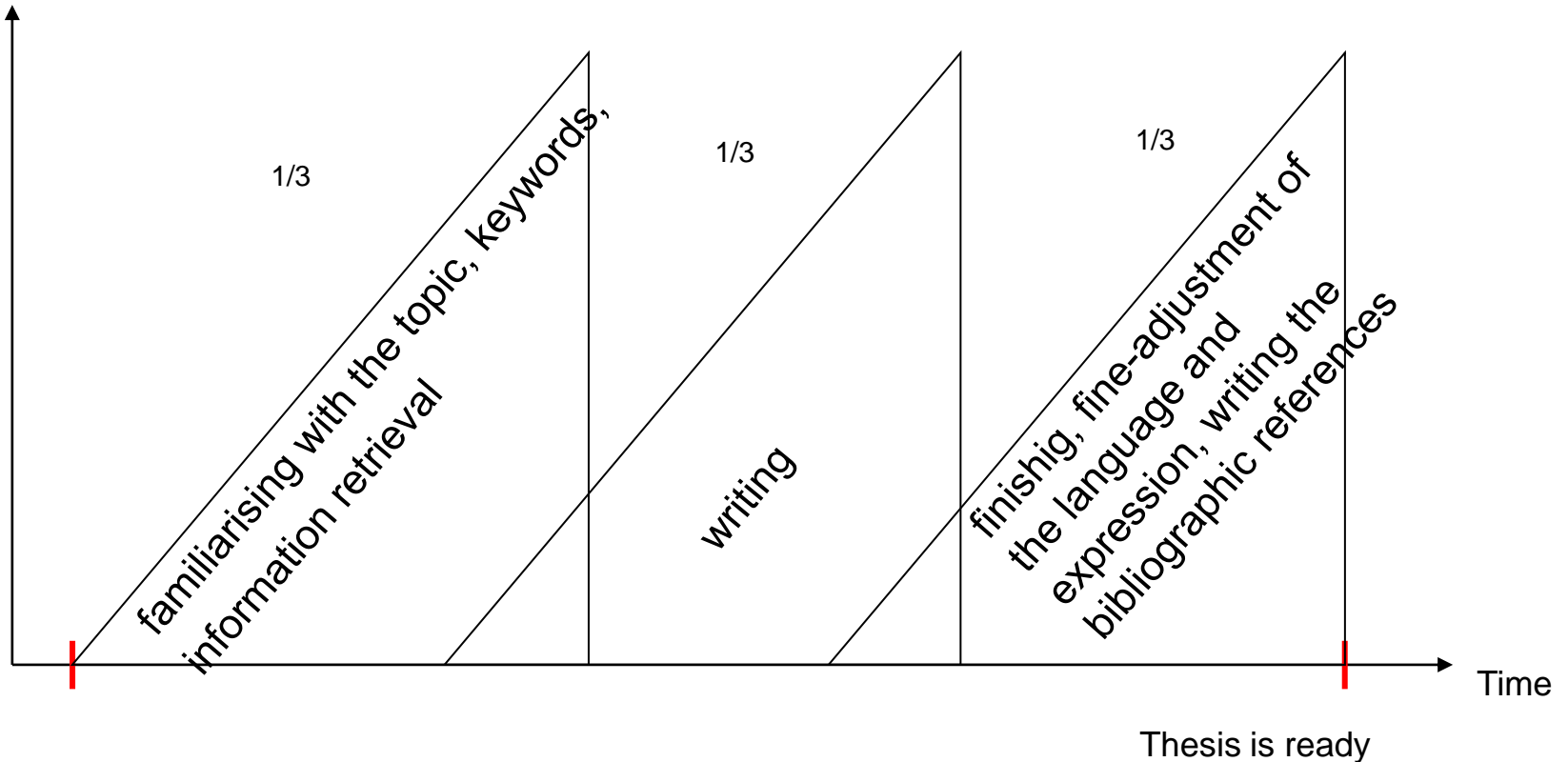
What kind of information searcher are you?

Think about this for two minutes.

Some information searcher types

- **Thorough, follows nicely all recommendations.**
- **Overachiever, is not able to stop information retrieval.**
- **Asker, is not able to make own decisions.**
- **Survivor, is pleased when has found some information.**
- **Plagiariser, turns to deception.**

The phases of bachelor's thesis



Bachelor's thesis

- **is an important exercise where the process is as important as the result.**
- **The aim is to learn the basics of scientific information retrieval and scientific work.**

Electronic archiving of bachelor's theses

- All accepted theses will be archived as PDF/A.
- Converting a file to a PDF/A compliant version
https://aaltodoc.aalto.fi/doc_public/ohjeet/aaltodoc_pdf_a.pdf

Help for bachelor's thesis

Individual guidance available via Teams

- reserve a time: [kirsi.heino\(at\)aalto.fi](mailto:kirsi.heino@aalto.fi)

Questions

- bachelor's thesis archiving: [eage\(at\)aalto.fi](mailto:eage@aalto.fi)

Information retrieval is:

- **Locating scientific information.**
 - **Searching for research literature.**
 - **Finding information sources.**
 - **Familiarising oneself with the topic.**
 - **Managing reference information.**
-
- **It takes time.**

What kind of information?

- **Scientific information differs from everyday information.**
- **Basic information: general view of the field of research**
 - text books, handbooks, reference books, handouts, master's theses, dissertations, reports
- **(Latest) research information**
 - scientific articles (review articles)
- **Fact information**
 - books of tables, standards, brochures

The bachelor's thesis topic

- **Do you already have a topic?**
- **What do you know about the topic?**
- **You can do test searches with Google or Google Scholar.**
- **Read other students' bachelor's theses.**

Accessing bachelor's theses

- In current situation you cannot read them in the Learning Centre.
- You can read the reference information in Aaltodoc.
- You can order the ones you wish to read in electronic format from: **oppimiskeskus(at)aalto.fi**
- You will get them within two weeks to your email.

Aaltodoc publication archive

<https://aaltodoc.aalto.fi/>

Bachelor's theses

- reference information

Aalto University's and its predecessors' master's theses, licentiate theses and dissertations

- full text or reference information

Familiarise yourself with the topic

- **Define the topic for yourself.**
- **Split the topic into several concepts.**
- **Think about questions to which you want answers.**
- **Outline your topic.**
- **Read basic literature on the topic.**

Map methods

Concept maps

- with free Cmap Tools or pen and paper
- relations between concepts

Mind maps

- with free FreeMind or pen and paper
- tree-like structure suitable for table of contents

Systematic information retrieval

- **Decide which years and databases you are going to search.**
- **Go through different kinds of databases.**
- **Use different kinds of keywords depending on the database.**
- **Search for new keywords from the good hits.**
- **Search also with researchers' names.**
- **Follow citation trails (in Scopus, Web of Science). DEMO**
- **Investigate the bibliographies of good hits.**
- **Try to collect a lot of material.**

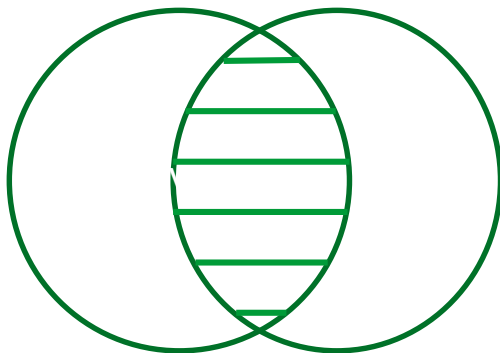
How to find good keywords

- **Be creative, find general knowledge about your topic.**
- **Do warming-up searches with Google (Scholar).**
- **Search for new keywords from the good hits.**

Techniques of search phrases

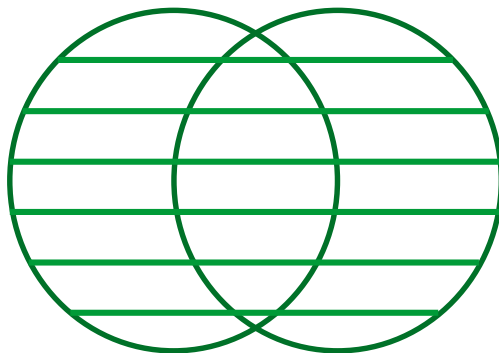
You can use boolean logic in nearly all of the databases provided by the Learning centre.

A AND B



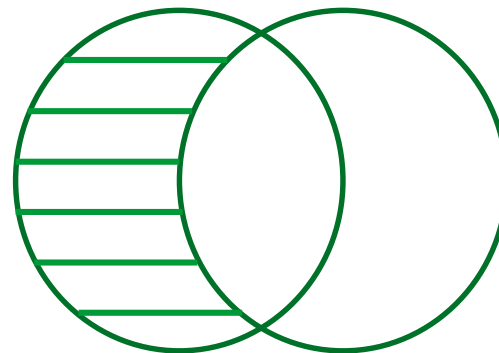
A B

A OR B



A B

A NOT B



A B

An example search: ventilation in high-rise buildings 1

- **Short description: in high-rise buildings there will often be a so called stack effect which is due to the difference in indoor-to-outdoor air density. Inside the building warmer air rises up while under the neutral axel (in lower part of the building) there will be underpressure and consequently above the neutral axel (in upper part of the building) there will be overpressure.**

An example search: ventilation in high-rise buildings 2

- **Questions: How does stack effect affect ventilation? How should air conditioning be designed so that stack effect could be avoided?**
- **Outlining: houses of more than eight floors, the effect of wind is not taken into consideration, only mechanical air conditioning**

An example search: ventilation in high-rise buildings 3

Keywords and their combination:

**(“tall buildings” OR “high-rise buildings”) AND
 (“stack effect” OR “chimney effect”)**

Google Scholar

- You can set Google Scholar to read ViewIt@Aalto links also from your own computer: <http://scholar.google.com/> - Settings -> Library Links -> "Aalto University - ViewIt@Aalto"

The image shows a screenshot of the Google Scholar website. On the left, a navigation menu is highlighted with a red box. The menu items are: My profile, My library, Alerts, Metrics, Advanced search, and Settings. A red arrow points from the 'Settings' option in the menu to the 'Library links' option in the main content area. The main content area shows the 'Settings' page with a list of options: Search results, Languages, Library links (highlighted in red), Account, and Button. Below this list, there is a section titled 'Show library access links for (choose up to five libraries):' with a text input field. Below the input field, there is a checkbox labeled 'Aalto University - ViewIt@Aalto' which is checked. At the bottom, there is a note: 'Online access to library subscriptions is usually restricted to patron library password, use a campus computer, or configure your browser library's website or ask a local librarian for assistance.'

Google Scholar will not answer all your needs

| Pros of Google Scholar | Cons of Google Scholar |
|--|---|
| Familiar and relatively simple to use, much like Google. | Does not allow users to limit results to peer reviewed or full text materials or by discipline. |
| Variety of materials including articles, books, conference proceedings. | Coverage is wide-ranging but not comprehensive and high scholarly quality is not guaranteed. |
| Can display links to articles and books held through Aalto University Learning Centre. | Weeding through results not held at Aalto is time-consuming. |
| See how many times an article has been cited and by whom. | Citation information is not as reliable as Scopus or Web of Science information. |

Resource guides

<http://libguides.aalto.fi/en>

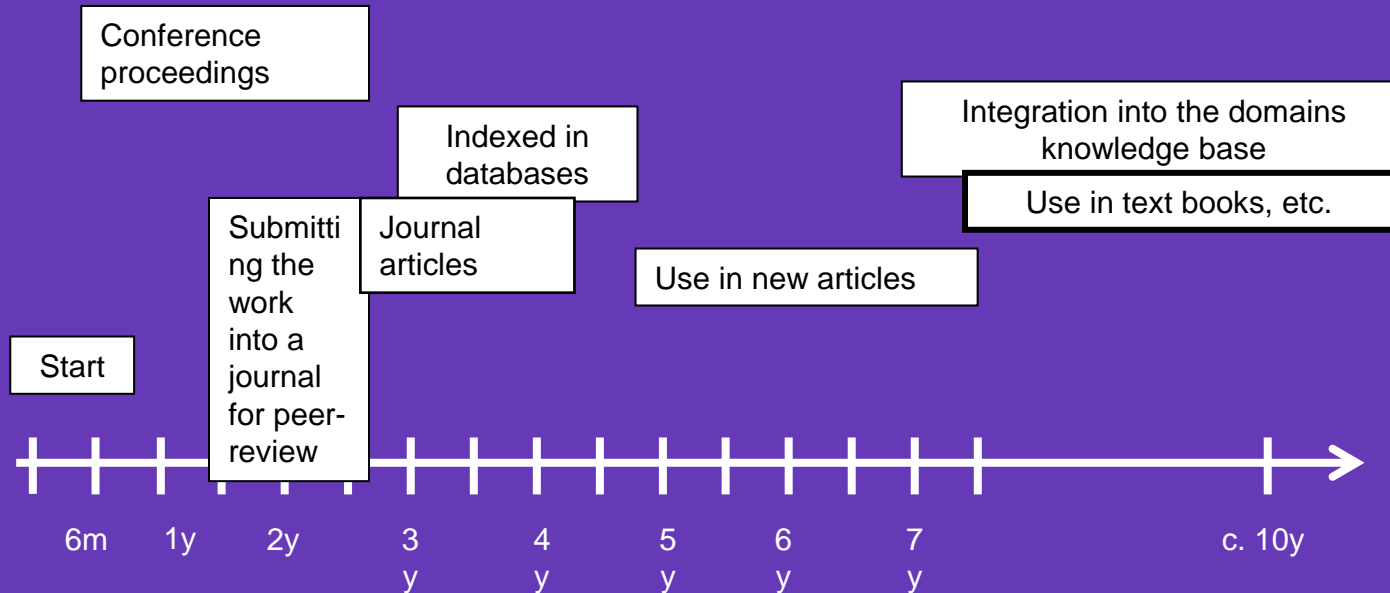
- Information retrieval
(<http://libguides.aalto.fi/informationretrieval>)
- Theses and Dissertations Guide
(http://libguides.aalto.fi/theses_dissertations)
- Guides for different fields of study
- E-book guide (<http://libguides.aalto.fi/e-books>)

Aalto-Primo <https://primo.aalto.fi>

- **all printed and electronic resources provided by the Learning Centre**
- **remote use**
- **Melinda (joint database for Finnish University libraries: theses of other Finnish academies)**

Scientific communication - a simplification

Adapted from Sondergaard, Andersen and Hjørland(2003, s. 289) and Barnes (1985, s. 41)



Database types

- **Reference database: Scopus, Web of Science**
- **Full-text database: Science Direct**
- **Image database: Europeana**
- **Fact database**

Large multi-disciplinary databases

Scopus DEMO

- reference database
- citation trails

Web of Science

- reference database
- citation trails

Science Direct

- Elsevier publisher's full-text database
- e-books

IEEE/IET Electronic Library (IEL)

- **Full-text database**
- **Central database in the fields of electrical engineering, telecommunications...**

Reaxys Beilstein/Gmelin

- **Reference database**
- **Two databases**
 - Beilstein organic chemistry
 - Gmelin inorganic chemistry

Knovel handbooks

- **Information on chemical elements, materials and compounds**
- **Interactive tools: tables, unit converter, equation plotter**
- **Knovel ToGo: mobile app**

Open Science

- **Open science is an important way to promote science and ensure that it will benefit the whole society and it enables collaboration and innovation.**
- **Aalto University supports open science in its research community and by doing it aims at gaining the benefits of openness: the societal impact of research increases, the speed of innovation grows, the high quality and transparency of science are ensured, and research results are openly accessible in helping to solve global problems.**

Open Access Publishing at Aalto

- **Aalto University requires that researchers make their peer reviewed scientific publications openly available, in the form permitted by publishers, at its ACRIS research information system: <https://research.aalto.fi/fi/>**
- **Sponsors (EU, Academy of Finland...) require opening the publications.**



**questions: [kirsi.heino\(at\)aalto.fi](mailto:kirsi.heino(at)aalto.fi)
(on holiday 2nd July - 1st August)**
