

STAND BACK



**I'M GOING TO TRY
SCIENCE**

www.xkcd.com

Literature Research, Scientific Integrity and Citations

Praxis der Forschung

Sarah Grebing, and [Michael Kirsten](#) | 02 May 2025

Literature Research

1. Introduction
2. Literature Search
3. Literature Evaluation
4. Citation/Referencing
5. Literature Management

Introduction

Purpose and Effort of Literature Search [Sch05]

Effort varies depending on the purpose!

Insight into a topic area:

Dissertation:

Seminar paper:

Final thesis:

Project proposal:

State-of-the-Art:

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State-of-the-Art:

Current review articles

Literature Research

- Introduction to the research field
- Legitimization of the project
- Contextualization of the project
- Basis for the project

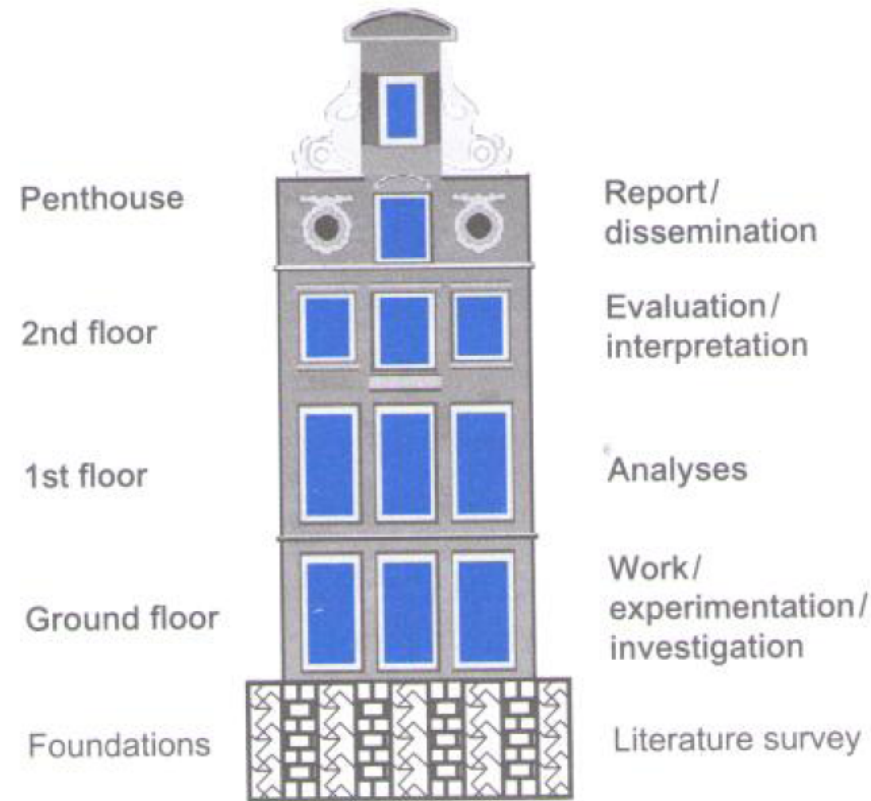


Figure: Literature as the foundation for a project [Daw05]

Literature Search

Literature Research

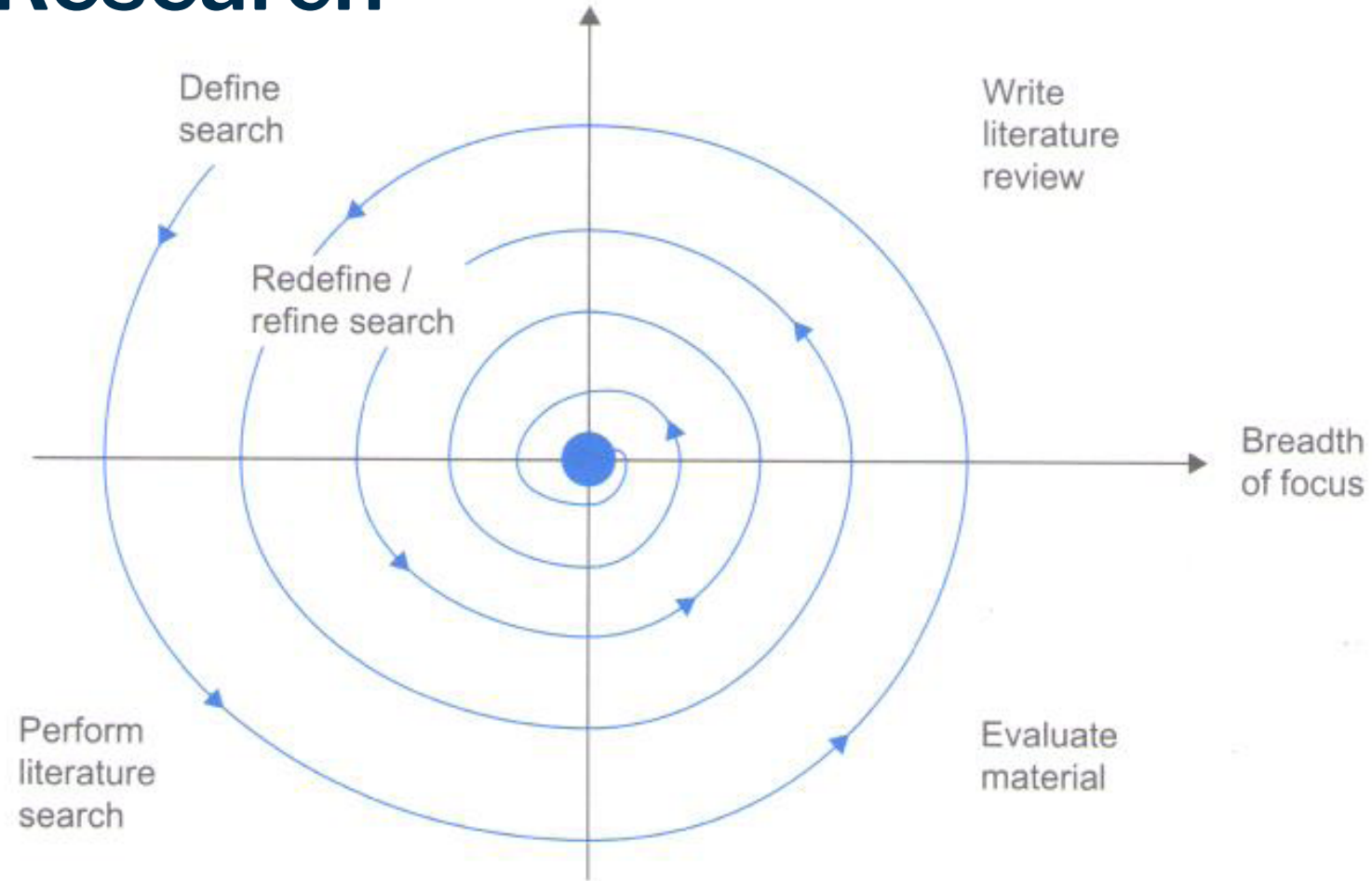


Figure 5.5 The literature survey process

Figure: The process of literature research [Daw05]

Literature Search: A Process

A systematic and structured process

1. Getting started with the search:
 - Definition of the topic or related topics
 - Provided literature (not a conclusive literature overview)
 - Keywords
 - Authors, conferences, collected volumes or anthologies
 - Important: Incoming and outgoing references
2. Read available literature appropriately (in the following)
3. Continue searching:
 - Follow references
 - Search for background information to understand sources

Sources

- Google Scholar: <https://scholar.google.com>
- DBLP: <https://dblp.org>
- Citeseer: <https://citeseer.ist.psu.edu>
- Catalogs of the libraries
- IEEEXplore: <https://ieeexplore.ieee.org>
- ScienceDirect: <https://www.sciencedirect.com>
- ACM Digital Library: <https://dl.acm.org>
- Springer Link: <https://link.springer.com>
- Emerald: <https://www.emerald.com/insight/>
- Web of Science: <https://www.webofscience.com>
- DirectScopus: <https://www.scopus.com>
- ...

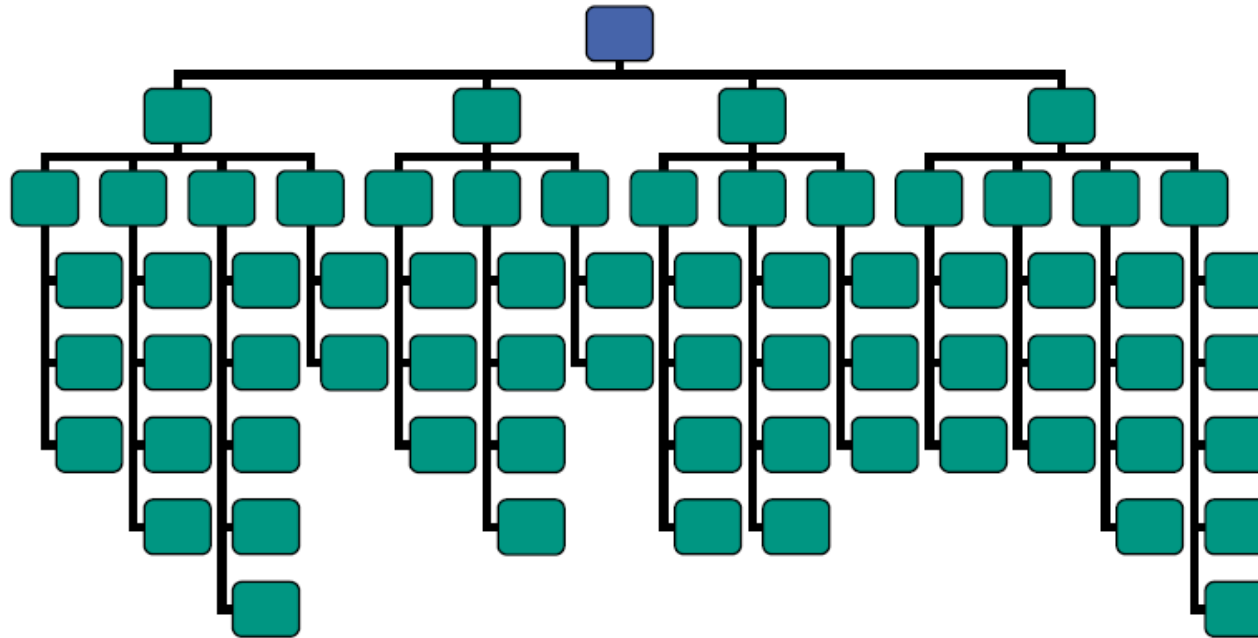
Search Process

- Wikipedia as an introduction, but **not** as a source
- Catchwords
- Main topics / subtopics
- Synonyms
- Convert formulations
- Search specifically for all publications by an author
- Search specifically for a conference/workshop series
- Track references backwards

Tracking References

Further literature?

- Track references at the end of the text
- Further papers by the authors/group
- Only track those references further which appear suitable based on the explanations of the context
- Do not track all references:



Literature Evaluation

Reading Techniques

Time-saving read of available literature

- First read the abstract, conclusion and, if applicable, introduction, look at the figures
- Then decide whether literature is suitable

Targeted reading

- Approach the text with specific questions
- Find answers to these questions while reading

Critical reading

- “Critical” does not mean negative!
- Question statements made in a text (even if published at a renowned conference or in a renowned journal)

Reading and Questioning

Reading and Questioning

- Reproduce the content of individual sections in a sentence
- Note down questions directly
- Mark references that may be of interest
- Comprehend examples
- Collect BibT_EX sources directly

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Example: Application of Statistical Methods

iMedPub Journals
<http://journals.imed.pub>

INTERNATIONAL ARCHIVES OF MEDICINE
SECTION: ENDOCRINOLOGY
ISSN: 1755-7682

2015

Vol. 8 No. 55
doi: 10.3823/1654

Chocolate with high Cocoa content as a weight-loss accelerator

ORIGINAL

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55126 Mainz, GERMANY

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Abstract

Background: Although the focus of scientific studies on the beneficial properties of chocolate with a high cocoa content has increased in recent years, studies determining its importance for weight regulation, in particular within the context of a controlled dietary measure, have rarely been conducted.

Example: Application of Statistical Methods

iMedPub Journals
<http://journals.imed.pub>

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LINE
OLOGY
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HEALTH

I Fooled Millions Into Thinking Chocolate Helps Weight Loss. Here's How.

John Bohannon
5/27/15 4:23PM • Filed to: DEBUNKERY

527 282

Facebook Twitter Email Link



"Slim by Chocolate!" the headlines blared. A team of German researchers had found that people on a low-carb diet lost weight 10 percent faster if they ate a chocolate bar every day. It made the front page of *Bild*, Europe's largest daily newspaper, just beneath their update about the Germanwings crash. From

Chocolate as

Abstract

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es Bohannon¹,
Koch¹,
Komm¹,
der DrieHaus¹

Diet and Health, Poststr. 37.
12, GERMANY

Information:
s@instituteofdiet.com.

Example: Application of Statistical Methods



I am Johannes Bohannon, Ph.D. Well, actually my name is John, and I'm a journalist. I do have a Ph.D., but it's in the molecular biology of bacteria, not humans. The Institute of Diet and Health? That's nothing more than a website.

Other than those fibs, the study was 100 percent authentic. My colleagues and I recruited actual human subjects in Germany. We ran an actual clinical trial, with subjects randomly assigned to different diet regimes. And the statistically significant benefits of chocolate that we reported are based on the actual data. It was, in fact, a fairly typical study for the field of diet research. Which is to say: It was terrible science. The results are meaningless, and the health claims that the media blasted out to millions of people around the world are utterly unfounded.

Handling Multiple Sources

What do I cite if there are several available sources for a particular fact?

At best: The most reliable source

In decreasing order of reliability:

1. Journal or book
2. Conference publication
3. Workshop publication
4. Technical report
5. Thesis (if no alternative)

Citations

Why cite?

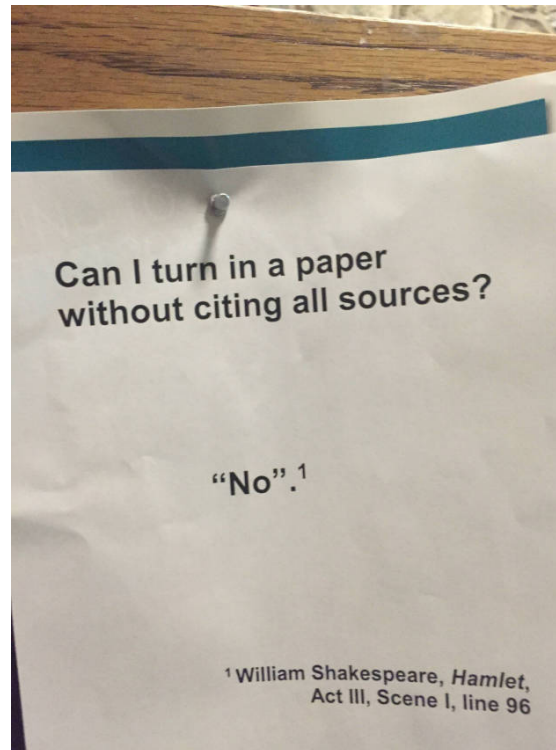


Figure: “Can I turn in a paper without citing all sources?”¹

¹<https://onsizzle.com/i/can-i-turn-in-a-paper-without-citing-all-sources-1321015>

What is wrong with this and why?

In the text

Werner Heisenberg coined original sayings such as “An expert is a man who knows some of the grossest mistakes that can be made in the respective field and who therefore knows how to avoid them.”

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Solution

- The source reference is missing
- Origin of the statement is not known
 - Verifiability not guaranteed
 - Does the saying come from a personal letter, a speech or a scientific article? Time? Place?
- Original context of the statement is not known

Rules of Good Scientific Practice (Excerpt)

Infringement of intellectual property [KT10], e.g., by:

- Plagiarism
- Theft of ideas
- Unjustified assumption of scientific authorship
- Denial of legally acquired claim to authorship
- Knowingly concealing material relevant preparatory work of others
- Deliberate or unreasonable delay in the publication of a scientific paper (especially as editor/reviewer)
- Unauthorized publication and making available to third parties as long as the work, finding, hypothesis, doctrine or research approach has not yet been published

Plagiarismus

Definition: Plagiarism [Dud12]

“unlawful appropriation of another person’s thoughts, ideas or the like in the artistic or scientific field and their publication; theft of intellectual property”

Thoughts, ideas, etc. refer to, among other things [For08]:

- Words, texts, articles, etc.
- Images, graphics, diagrams, statistics, etc.
- Structures
- Media files (videos, audio recordings, etc.)
- Source code, compiled programs, algorithms
- Emails, letters, interviews, etc.
- ...

How do I cite correctly?

Various situations in which citation is required [For08]:

- Using the work of others (paper, ideas, etc.) (Reproduction in your **own words** and in your **own way** or in summary)
⇒ Indirect quotations:

*It must be clearly apparent, **where** the work comes from and **which part** of the work is not your own.*

Examples:

- The following section is oriented towards / based on / is inspired by [Source] ...
- The basic idea comes from [Source] ...

- Verbatim quotes are particularly noteworthy:

“Personalities are not formed through fine speeches, but through work and personal achievement.” (Albert Einstein)

How do I cite correctly?

Common knowledge

Needs not be cited

Example:

The capital of Germany is Berlin.

Basic / fundamental knowledge of the field

Context-dependent, ask supervisor if in doubt

Citation Types: Direct or Verbatim Quotes

- Separated from the text or enclosed in quotation marks
- With source citation directly after the quote

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Refining information

Werner Heisenberg already stated that: “An expert is a man [this also applies to women, *author of the amendment*] who knows some of the worst mistakes that can be made in the field in question and therefore knows how to avoid them.” (Heisenberg 1969, p.286)

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Handling errors in the text

Werner Heisenberg stated that: “Scyence[!] is made by humans” (Heisenberg 1969, p.1)

Citation Types: Indirect Quotes

Reproduction of ideas from others

- Reference at the end of the section (as close as possible to the idea)
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Citing “second-hand”

“Person A has said that person B has said ...”

- Avoid as much as possible (only in exceptional cases if the original source is inaccessible)
- If you cite like this: Checking the quoted statement
- Better: Get the original source and then quote it
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How do I cite correctly?

Recommendation: Use BibTeX (or biblatex or Biber)

- Program for references and bibliographies in L^AT_EX documents
- Relatively reliable method for complete and well-formatted references
- Code snippets available for download on the Internet (e.g., from DBLP)
- Correct designation of the correct source type required
- Source type is automatically set correctly in text (at least in L^AT_EX)

How do I cite correctly?

Frequently used types of sources:

- Articles (@Article)
- Books (@Book)
- Conference proceedings (@Proceedings)
- Conference articles (@InProceedings)
- Diploma, master's, bachelor's, doctoral theses (@MastersThesis, @PhDThesis)
- Technical reports (@TechReport)
- Digital sources (@Online, @Electronic, @Misc)
- ...

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See also <https://mirror.clientvps.com/CTAN/macros/latex/contrib/biblatex/doc/biblatex.pdf>.

BIB_TE_X Example

Input:

```
@Book{Myers2004,  
  author    = {{Glenford J.} Myers},  
  title     = {The art of software testing ({2.} ed.)},  
  publisher = {Wiley},  
  year      = {2004}  
}
```

Display:



Glenford J. Myers.

The art of software testing (2. ed.).

Wiley, 2004.

Literature Management (Exemplary)

Tools for Literature Management (I): JabRef

JabRef¹: Open source management system for BibTeX entries

- Provides suitable fields for each literature type
- Search in References
- Editing of BibTeX entries
- Preview of the entries
- Linking the PDF with the entry
- Runs on the Java VM (should work on all platforms)

¹<https://jabref.org/>

Tools for Literature Management (I): JabRef

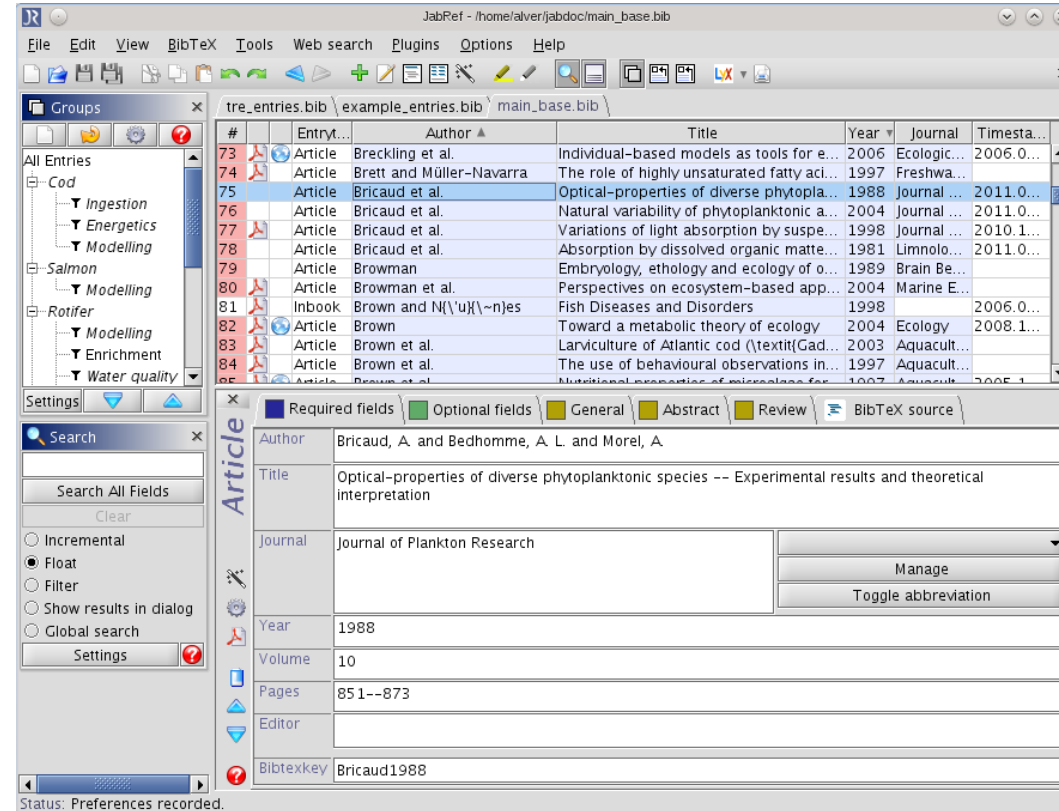


Figure: Graphical user interface of JabRef¹

¹<https://jabref.org/>

Tools for Literature Management (II): Mendeley

Mendeley²: Networked management system for BibTeX entries, among other things

- Literature management with groups
- Annotation of documents
- Extraction of BibTeX entries
- Platform-independent

²<https://www.mendeley.com/>

Tools for Literature Management (II): Mendeley

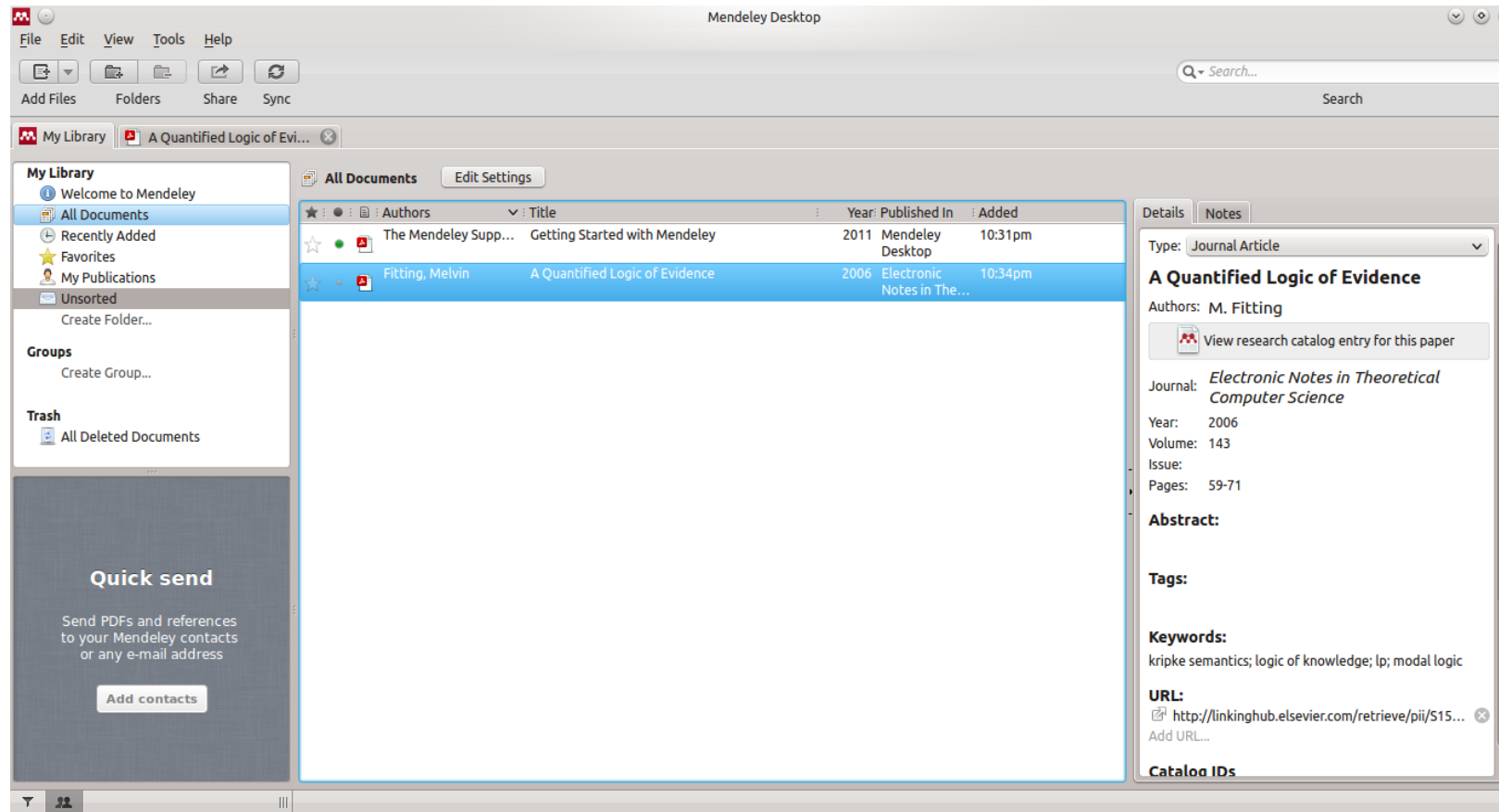


Figure: Graphical user interface of Mendeley²

²<https://www.mendeley.com/>

Tools for Literature Management (II): Mendeley

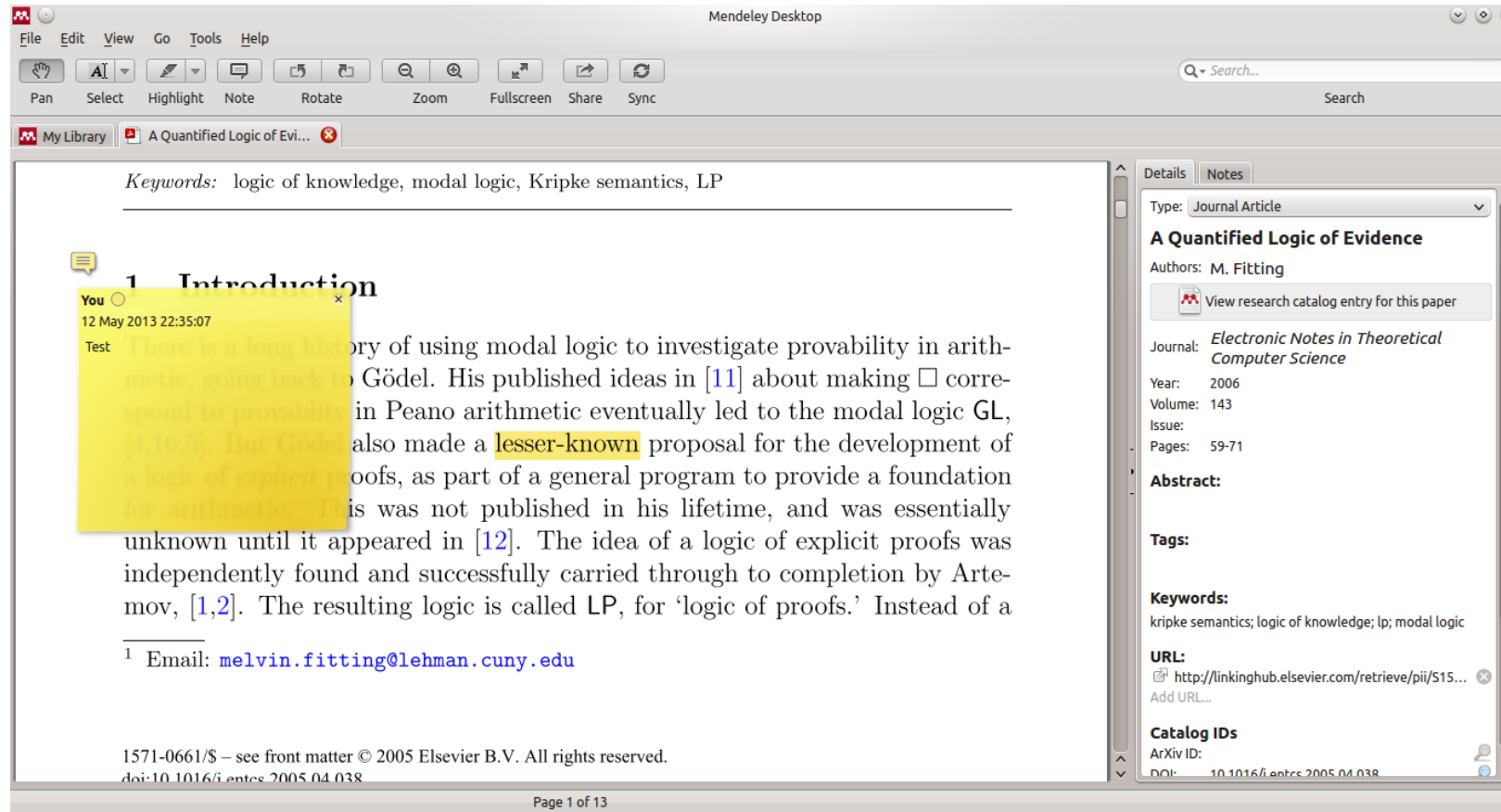


Figure: Embedding the PDF source in Mendeley²

²<https://www.mendeley.com/>

Tools for Literature Management (III): Zotero

Zotero³: Networked open source literature management system

- All of the above (except for JavaVM and embedded annotations)
- Open source and free sharing, and collaboration
- Option to set up your own instance
- Flexible grouping and categorization
- Automatic literature search on the web
- Integration in Word, LibreOffice and GoogleDocs

³<https://www.zotero.org/>

Tools for Literature Management (III): Zotero

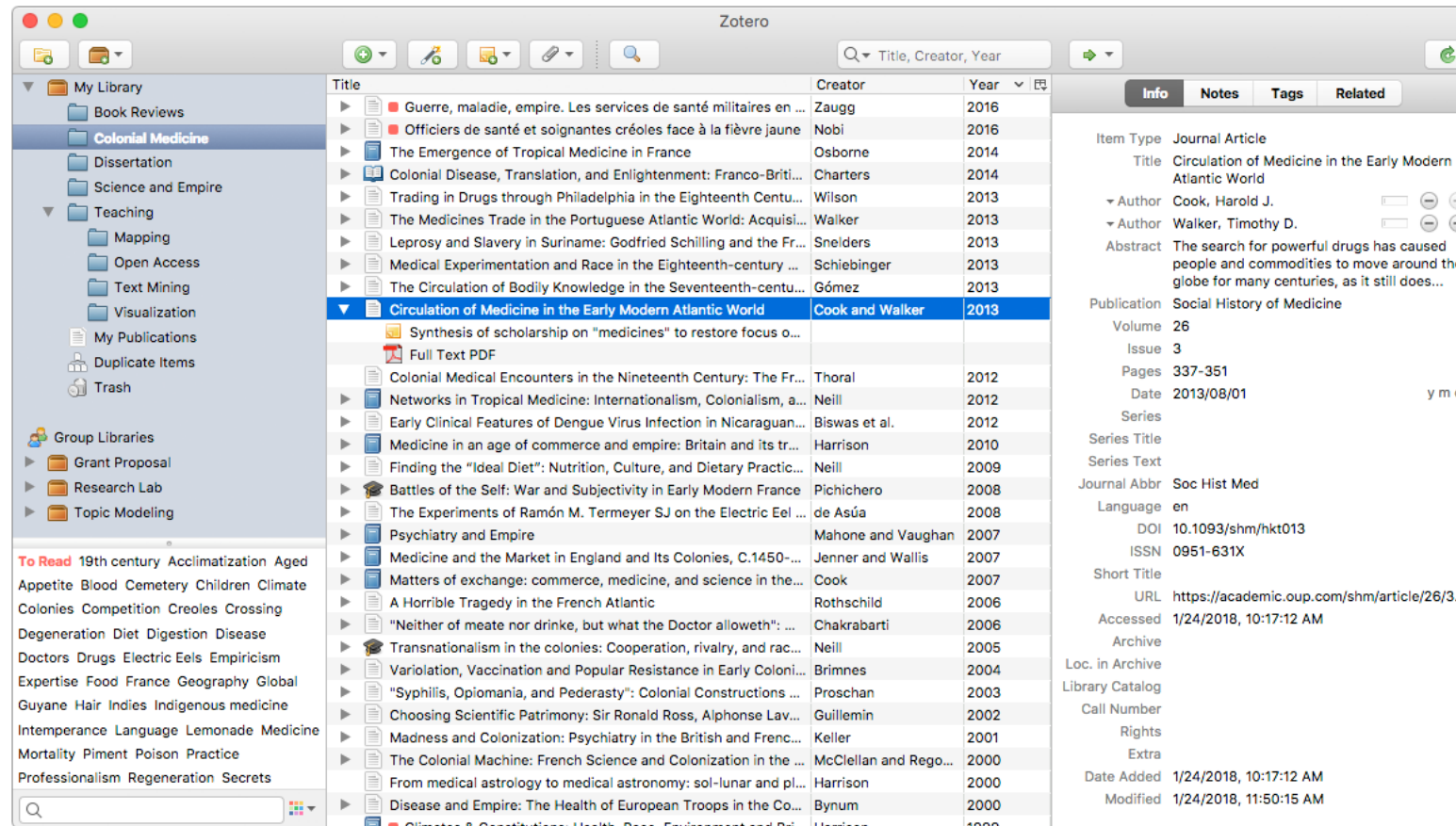


Figure: Graphical user interface of Zotero³

³<https://www.zotero.org/>

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