1 NUS Libraries Online Tutorials

Types of documents
- Thesis & Dissertations, conference proceedings, journal & news articles, patents
- Review articles (good for summarizing recent developments/if u're new to the topic), bibliographies, books

Search in multiple platform to avoid info from falling through the crack

NUS Guides:
- **Subject guides**: guide avail to NUS community for specific subject areas **[Link]**
- **Other guides**: APA Citation Style, Zotero, patents, how to find free online content! **[Link]**

1.1 Search strategies

Challenges in searching:
- may miss important literature
- how to find the right keywords?
- not specific enough
- irrelevant papers
- publications not recent

How to search?:
1. Identify the keywords
2. Add search operators
   - `OR`: eg COVID19 OR coronavirus
   - `*`: wildcard eg COVID* → COVID19/COVID-19/COVID
     virus* → viruses/virus (singular/plural)
   - `AND`
   - `" "` search for EXACT phrases
3. Refine the search statement
   - look at the search results and articles
   - are there new useful keywords/synonyms?
   - are there any irrelevant articles? → remove those noise keywords

1.2 Where to search?

FindMore
- Books and E-resources ⇒ View more
- Sort by relevance/date/author
- **Refine your search**
  - Content type (journal article etc.)
  - Publication date (1,3,5 years etc.)
- View abstract/summary to not waste time reading article
- Colourful doughnut: usage of article
- **Cites/Cited by**: show a list of references which have been referred to by the particular publication
- **Advanced search**: search by discipline etc.
- **Save search**: allows users to save search

Web of Science
- Peer reviewed journals!
- NUS Libraries Portal → Databases → Web of Science
- Filter by:
  - Publication years
  - Document type (**[IMPT]** NO REVIEW ARTICLES)
  - Sort: by **number of citations, relevance**
- Read abstract
- **Citations**
  - Cited by
  - Cited papers
- Find it! @ NUS Library
- Analyze results
  - Discover insights on areas as well as authors
- History

Factiva
- International news database produced by Dow Jones
- Access from NUS Libraries Portal

1.3 A.R.T Evaluation Criteria

- Authoritative
  - Who is the author(s)?
  - What are the author(s) credentials or organization affiliations?
  - Has the author(s) published widely? Is the author an established expert in the field?
  - Is the information from original and reliable authentic sources? (Does the URL reveal anything about the source?)
  - Is there contact information, such as email address?
- Relevance
  - Is the information relevant to your research topic?
  - Who are the intended audience of the information?
  - Is the information at the appropriate level (i.e. not too elementary or overly advanced for your needs)?
- Timely
  - Is the information updated?
  - When was the information published?
  - Is the information up to date for the topic?
  - When was the information last updated or revised?

1.4 Alternative ways to access full texts

Google Scholar
- use similar keyword search
- Library links → Search NUS → Open WorldCat - Library Search & National University of Singapore - FindIt!

Proxy Bookmarklet
- How to install NUS Proxy Bookmarklet

2 Week 2

2.1 Tutorial 2.1

Current problems with scientific communication
- Current media and its audience value speed and ease of digestion of information over quality and reliability
  - Lack of transparency, people don't know what's happening as media leave out limitations and caveats, as well as scientific methodology due to journalistic constraints

- Exaggerating/inflating information to generate more clicks, can be misused or exploited by media/authority
- Lack of respect from the general public towards the scientific community
  - The uncertain nature of science → contradictory headlines/claims, people don't know what's happening
- Difference in views (Lack of scientific literacy) between the layman and the scientist (e.g. links between vaccination and autism, does man contribute to global warming)
  - Difference in view regarding contribution of science towards society → affects public policy and scientific progress
- The public are generally intimidated by scientific jargons and abstract concepts
- Lack of scientific publications that aim to popularize science to the masses (at least in SG)

Aims of scientific communication

- Educate public on current scientific developments and its relevance to society
  - Obligation to be transparent regarding science work as science uses large amounts of resources
- Spark meaningful debates and discussion
- Increase interest in science and allow people to make more informed decisions as well as political decisions
- Fusion of public and scientific values (general public have more scientific values such as accuracy and reproducibility etc.)

Why is scientific communication useful for scientists?

- Allow scientists to discuss different ideas
  - especially scientists from different domains as even an expert in one area might be an amateur in other areas
- Realize the relevance and societal impact in their work
  - Clarify the aim of their work through writing
- A reflection of their knowledge and how much they have learnt from their studies
- Wider social perspective
  - Thinking from general public perspective
  - Deal with different perspectives and learn how to explain abstract concepts to the layman

Color and Clarity: purpose of scientific communication!

Some strategies (Talia Gershon)

- different audience? get a sense of audience's prior knowledge by asking questions
- everyday object (noise cancelling headphones)
- how does this affect them (significance) on personal level
- Storytelling (make this relatable to them [hook])

2.2 Tutorial 2.2

How are papers organized?

- Title (important **keywords**) → abstract (summary)
- Introduction (what was the problem? what was the reason for the research? what have previous studies done? what are the hypotheses?)
- Methods (how readers can replicate the research [procedures/methodology, observations/data])
- Results (how does it *contribute* to the body of sci knowledge?)
- Discussion/conclusions
- Acknowledgements → references

Start by asking IMRAD

- **I**ntro: what was the question? why is it **I**mportant
- **M**ethods: how did the research try to answer it / solve the problem?
- **R**esults: what did they find?
- **A**nd **D**iscussion: what do the results mean? How does this contribute to the body of scientific knowledge

How to read a scientific paper?

- **Skim** the article without taking notes (big picture)
- **Re-read** especially *results* and *methods*
  Try to interpret the data before reading explanations
- **Ask** questions
  - What problems does the study address?
  - Why is it important?
  - Is the method good?
  - Are the findings supported by evidence/other work in the field?
  - Is the study repeatable? How big is the sample size? Is this representative of the larger population?
  - What variables were held constant?
- **Write** a summary

Other useful tips

- Draw inferences (rely on background knowledge)
- look for words (unexpected, in contrast to previous work, hypothesize, suggest) and main points
- take notes in own words (summary) and develop a template

Other difficulties in reading papers

- Depends on the writing skills of the scientists involved
- Sometimes describes only the 'what' (methods, results), not the 'why'
- Paper has no clear structure
- Description of experiment is ambiguous
- Authors refer back to previous papers
- Authors firmly believe in their particular model, not open to criticisms
- Authors overstate the importance of their findings

Criteria for news article

- Trivial assumptions?
- Generalizations? or can it only be applied to specific areas under certain circumstances?
- Specific fields only? or for general public?

3 Week 3

3.1 Tutorial 3.1

Strategies (important for reflection)

- **Unexpectedness** Belief turned upside down (mind-blown), example would be genes utilising humans in

Dawkins chapter
- **Possibility**: possible to be used for more application
- **Potential/Effect/Impact**: Significance
- Functional recontextualization - use function without much details (simplification)
  - Not talking about what it is but about what it does
- Storytelling (plot, character that you can relate to)
- Descriptive (5 senses that you can be fully immersed in)
- Conversational tone (actually, of course,)
- Personal pronouns (I, we, you)
  - 'I' used to indicate level of expertise to separate you and I
- Analogy/metaphors
- Deontological appeal
  - add an air of mystery/intrigue

3.2 Tutorial 3.2

Headlines/leads:
- move 1: intro key findings
- move 2: highlight/describe significance/impact concrete examples/impact ⇒ research not just for the sake of science, but can be useful for the layman
- Combat popular perceptions regarding controversial stuff

some more strategies:
- Definitions (using brackets to explain the word/term)
- Analogy (metaphor is more like something ... is ...) Don't use unfamiliar concept to explain another unfamiliar concept (e.g. winter skid tyres vs olfactory bulbs)
- Descriptions (explaining process/mechanism/concept)

Areas of evaluation for DEONTOLOGICAL APPEAL
- Unexpectedness (mindblowing stuff)
- Possibility (do the results have potential impacts in multiple domains in the future?)

4 Week 4

4.1 Tutorial 4.1

Prime numbers Sautoy
- Humanize mathematicians through narrative story
- Effect on readers: sense of betrayal through plot twists (April fool prank)
- Writing style: Narrative
- **Teleological appeal**:
  - **APPLICATION/BENEFITS** FOR THE READERS
  - but might not be the best thing?

4.2 Tutorial 4.2

Cicada shit
- Introduce the key finding
- Significance: "First mathematical treatment", ".. to solve the problem of .."
- **RATIONALE FOR DOING THE RESEARCH**: nice move
  - **overcoming current limitations**
  - **Addressing research gap** (gap in the literature/missing info/explanation)
- **DIRECT QUOTE**: to ↑ credibility
  - Author
  - Credentials (job/specialty/institute/any awards/accolades)
  - Conversational/more personable
  - can be obtained from other news articles/past interview videos (use told)
- **BACKGROUND INTRO**: need to refer to other research/news articles for background knowledge and cite them!
- **NON-TECHNICAL TERMS**
- **EXEMPLIFICATION**: giving specific examples
  - Examples must also be understood by majority of readers
  - e.g. everyday objects
- **COHESIVE DEVICE**
  - **Synonyms**: using different names for the same thing to reduce repetition
  - Transition words: Although, However
  - Demonstrative pronouns: this/that ⇒ refer to complex concepts that have been explained beforehand
- Coherence vs Cohesion
  - coherence: ensure logical flow and understandability
  - cohesion: all the little things come together to tell a whole story
- Hedging:
  - Acknowledging limitations (there are assumptions)
  - Opening avenues for future research
  - alternative results

5 Week 5

5.1 Tutorial 5.1

Hungry Study
- Hunger ⇒ anyone can relate ⇒ relatable
- Move 6: introduced methods & findings
  - only included part of methodology that was relevant to understanding key finding
  - easy to understand
- Move: introduce key findings
- Tries to relate to readers because being 'hangry' is something that one has experienced before
  - What happens to u also happen to alot of ppl
- **Evaluate the findings**
  - acknowledge limitations of research and also previous research WHILE emphasising the validity/reliability of research
    - incremental nature of science
  - Opening up future directions for research (call to action????)
- Evaluative language: could, possibly etc
  - acknowledge limitations and assumptions
  - unethical research???? etc. unsound methodol-

ogy?? but a peer-reviewed research paper should not have this kind of problem

- **Conversational language**
  - More conversational transition words (in the meantime, at the same time)
  - inclusive pronouns
- Katong Flower Shop, BYOP protein??, Central Narcotics Bureau, Yeo's,

5.2 Tutorial 5.2

- Synonyms
- Coherence: logical flow of writing
  Why did the author use the data from Bengal Delta and apply it to Yemen?? **Move 7: explanation of results**
  THey omitted some explanation and logical link (e.g. the researchers measured some variables but did not explain why they are correlated to cholera outbreak)
- Cohesion:
- borrowed objective POV from outside the research

6 Week 6

6.1 Tutorial 6.1

6.2 Tutorial 6.2

7 Week 7

7.1 Tutorial 7.1

7.2 Tutorial 7.2

8 Week 8

8.1 Tutorial 8.1

8.2 Tutorial 8.2

9 Week 9

9.1 Tutorial 9.1

9.2 Tutorial 9.2

10 Week 10

10.1 Tutorial 10.1

10.2 Tutorial 10.2

11 Week 11

11.1 Tutorial 11.1

11.2 Tutorial 11.2

12 Week 12

12.1 Tutorial 12.1

12.2 Tutorial 12.2