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]**

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)

- Belief turned upside down (mindblown), example would be genes utilising humans in Dawkins chapter
- Functional recontextualization - use function without much details (simplification)
- 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

3.2 Tutorial 3.2

4 Week 4

4.1 Tutorial 4.1

4.2 Tutorial 4.2

5 Week 5

5.1 Tutorial 5.1

5.2 Tutorial 5.2

6 Week 6

6.1 Tutorial 6.1

6.2 Tutorial 6.2