Literature review & search techniques

NTU URECA Programme AY2019-20

Akbar Hakim
Senior Assistant Director
Advisory & Consultation
NTU Library
Office of Information, Knowledge
 & Library Services

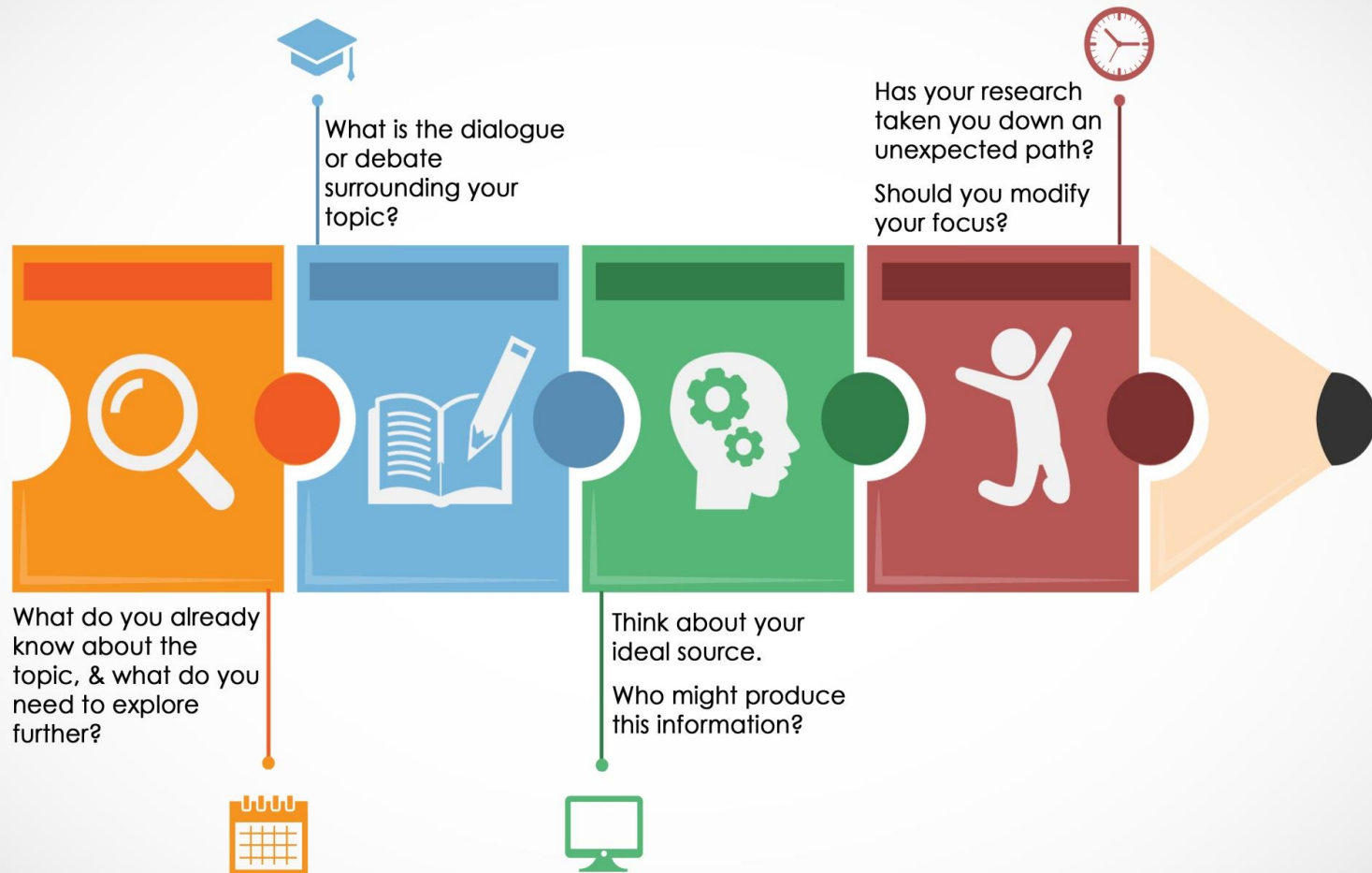*2nd, 9th & 10th October 2019*
15th & 16th January 2020

Outline
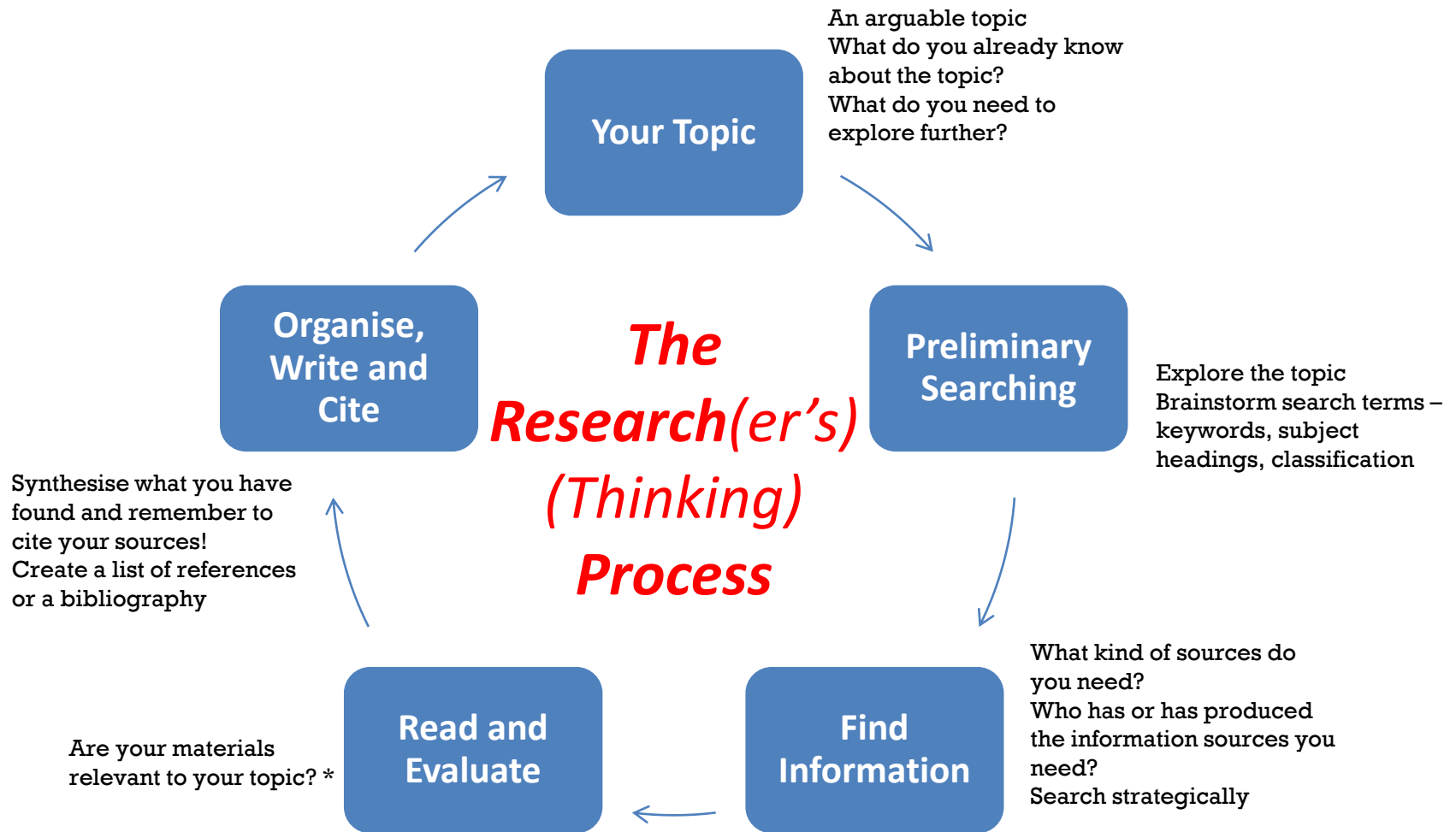
- Presentation

- Q & A

- Quiz

Research as Inquiry

Approach research as open-ended exploration and engagement with information. Tap into your intellectual curiosity, ask questions, and be flexible – ambiguity can help the research process!

What is the dialogue or debate surrounding your topic?

Has your research taken you down an unexpected path?

Should you modify your focus?

What do you already know about the topic, & what do you need to explore further?

Think about your ideal source.

Who might produce this information?

Research is iterative and depends upon asking increasingly complex or new questions whose answers in turn develop additional questions or lines of inquiry in any field.

(ACRL Framework for Information Literacy for Higher Education, 2015)

Discover NTU Libraries

Bucknell University
Bertrand Library
Research Services, 2015

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Research Mindset

Your Topic

An arguable topic
What do you already know about the topic?
What do you need to explore further?

The Research(er's) (Thinking) Process

Organise, Write and Cite

Synthesise what you have found and remember to cite your sources!
Create a list of references or a bibliography

Preliminary Searching

Explore the topic
Brainstorm search terms – keywords, subject headings, classification

Read and Evaluate

Are your materials relevant to your topic? *

Find Information

What kind of sources do you need?
Who has or has produced the information sources you need?
Search strategically

* Go to SAGE Research Methods to read more about Reviewing the Literature

Doing research

Problem Discovery & Definition
- Task Encounter
- Identify & define problem
- Define problem
- Identify question/focus
- Conduct a Literature Review

Research Design
- Develop research model/ theoretical framework
- Identify research instrument
- Identify collection techniques

Data Collection
- Survey
- Experiment
- Observation

Data Analysis
- Understand, Critically evaluate, Interpret data that has been gathered

Communicate & Present
- Research paper, Dissertation, Thesis, etc. along with a complete bibliography

Research Cycle

A Literature Review

- Research is not done in a vacuum or in isolation.

- It has to be positioned into the existing scholarly work.

- The researcher needs to know what has already been covered in his/her field of research, like:
  - what variables were analysed?
  - what were the relationships amongst the variables?
  - what are the existing definitions, theories and findings?

Purpose

- Purpose of literature review
  - to explore the works of others
  - to look at existing relevant works in your research area
  - to identify important variables from other studies pertinent to your research
  - to identify gaps, misconceptions, contradictions in the issues relevant to your research
  - to assist in developing your research design

- Literature review is an essential entity in research and is a part of:
  - dissertations
  - reports
  - proposals
  - papers

Literature Review Process

The literature review process mirrors the researcher's thinking process

Four major steps:

1. **Problem definition**
   - identify a research problem or idea
   - formulate research questions
   - identify relevant **KEYWORDS**

2. **Search strategies**
   - identify your information needs
   - develop information seeking strategies
   - identify relevant information sources
   - use **KEYWORDS** to conduct searches
   - retrieve relevant articles, books, etc.

3. **Analysis**
   - review and summarise articles
   - take detailed notes
   - focus on identifying and comparing issues, variables, theories, methods and gaps
   - extract key information and tabulate key items in a matrix or summarised fashion

4. **Writing**
   - include pertinent variables, main issues and theories
   - analyse how your study relates to the available literature
   - highlight gaps in research works
   - compare and contrast studies and findings
   - create a list of references - a **BIBLIOGRAPHY**

Before embarking on your literature search proper...

...review these four key items:

Information Sources

- Books (including book chapters)
- Journal articles (peer reviewed typically)
- Conference proceedings
- Dissertations & theses
- Reports – technical, market, etc
- Papers – discussion, working, white, etc
- Government documents
- Data – statistics, financial, raw, etc
- Standards – technical, accounting, etc
- Patents
- News articles

What are the information sources in your subject & research area?

Information Types

Grey Literature

Information not available through the usual publishing channels

Examples:
- *Theses*
- *Working papers*
- *Institutional repositories*
- *Government reports & guidelines*

Primary Literature

First-hand accounts of events & original research works (new discoveries / contributions)

Examples:
- *Interviews, speeches*
- *Conference papers*
- *Journal articles*
- *Patents*
- *Standards*

Secondary Literature

Interpretations, observations, evaluations & opinions about the primary sources , analytical and critical writings

Examples:
- *Textbooks*
- *Reviews*
- *Encyclopedias*

Tertiary Literature

Compilations & descriptions of primary & secondary literature by titles, authors, categories, and other classifications

Examples:
- *Bibliographies*
- *Directories*
- *Databases*

How do I search and access these?

Research Tools

- NTU OneSearch – NTU Library search tool
- Databases: Collections A-Z List
  - Subject databases – Business Source Complete, IEEE Xplore, Emerald Insight, Knovel, PsycARTICLES, etc.
  - Citation databases – Web of Science, Scopus, etc.
  - Multidisciplinary databases – ScienceDirect, Academic Search Complete, JSTOR, etc.
- Institutional repositories
  - DR-NTU (Open & Restricted Access)
- Government or institutional websites
- Google Scholar

- Data repositories – DR-NTU (Data)
- Google Dataset Search (beta)

Search techniques

- Block building (narrowing)

- Citation searching (broadening)
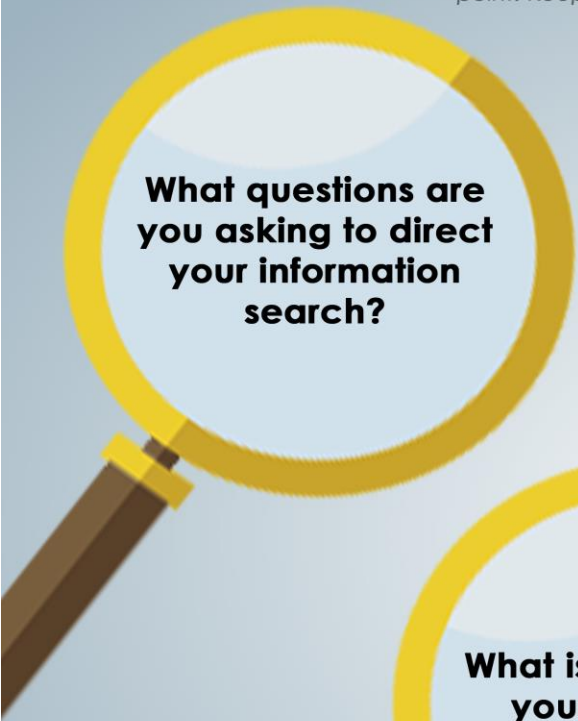
[Both techniques involve the use of keywords, subject-terms, key concepts]

Searching as Strategic Exploration

Realize that information sources vary in content, format, and relevance to your needs, depending on the nature of your search and the scope of your research.

Be flexible and understand that your first attempts at searching are just the starting point. Keep asking questions!

What questions are you asking to direct your information search?

Searching for information is often nonlinear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops.

(ACRL Framework for Information Literacy for Higher Education, 2015)

Who might produce this information? (e.g. scholars, organizations, governments)

What is the scope of your research?

What type(s) of information do you need?

KEYWORDS, OPERATORS & FILTERS

Literature Search: a librarian's handout to introduce *tools*, *terms* and *techniques*

BRAINSTORM
keywords

These are the main ideas of your research question/topic sentence.

EXPAND
your keywords

Look at the subject headings of the materials you find and use those terms as applicable.

Or look up your keywords in a subject-specific database thesaurus to find predefined terms (called *"controlled vocabulary"*).

USE
Boolean operators

Insert **AND**, **OR**, and **NOT** into your search to broaden or narrow it.

For example: PTSD OR Post Traumatic Stress Disorder AND soldiers NOT Navy.

REFINE
your search results

Filters in the database allow you to narrow a search by year, content type, etc.

1

At the library:
Consult a liaison librarian
or subject specialist.

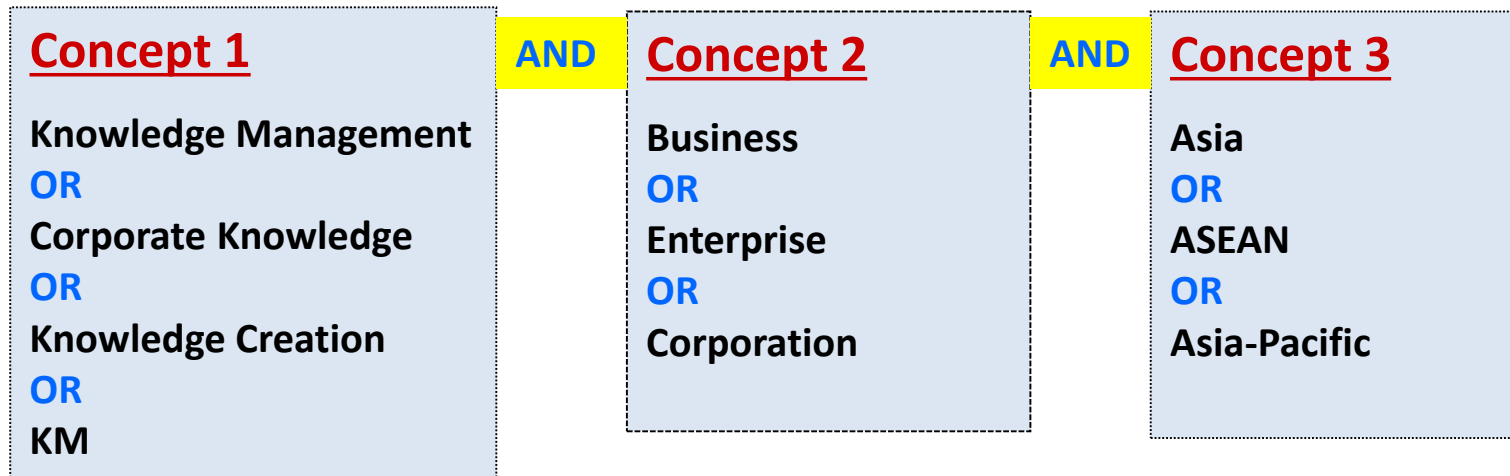Source: https://libraryconnect.elsevier.com

Block building

o Each **block** represents a **concept**

o Cluster related subject-terms/variables/keywords for each concept block

o Each concept block is searched separately

o Blocks are combined to get final results

A simple example:

- Concept 1 **AND** Concept 2 **AND** Concept 3

Concept 1		Concept 2		Concept 3
Knowledge Management **OR** **Corporate Knowledge** **OR** **Knowledge Creation** **OR** **KM**	**AND**	**Business** **OR** **Enterprise** **OR** **Corporation**	**AND**	**Asia** **OR** **ASEAN** **OR** **Asia-Pacific**

Citation searching

1. Citation searching is a specialized type of research in which the researcher searches for articles, books, or other materials that have cited or referenced a particular work.

2. It allows you to search forward or backward in the published literature, starting from your known reference, to locate new articles which cite your known reference in their bibliographies (the lists of references usually found at the end of chapters or journal articles).

3. Citation searching can be useful for these purposes:
   – To determine the impact of a work on its field by measuring how often it has been cited by other researchers
   – To trace the development of a theory or idea as it is cited by subsequent researchers - were they accepted, rejected or developed further?
   – To primarily cite other works in a literature review for background information in the subject matter, methodology and proposed approach.

Citation Searching

Navigating in a network or web of citations
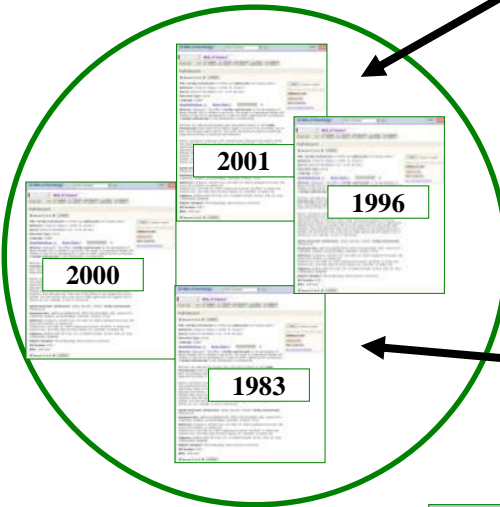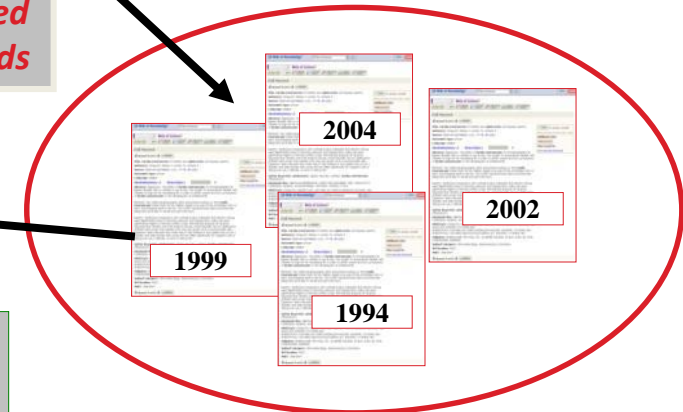
Your known work "A"
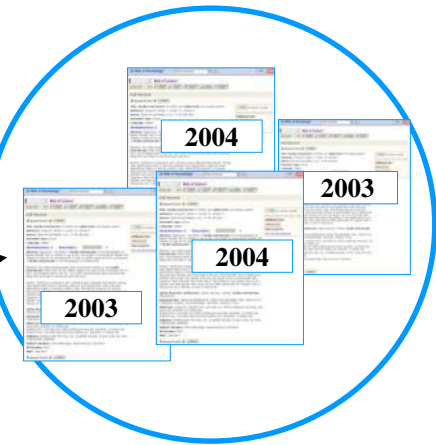
Cited References

"A" is citing

2002

Times Cited

"A" is cited by

2004
2003
2004
2003

"A" is related with **(Cross-Discipline)**

Related Records

2001
1996
2000
1983

Citing

2004
2002
1999
1994

...navigating
- *Backward in time* via **Cited References**
- *Forward in time* via **Times Cited**
- and laterally through **Related Records**

Content Analysis

Critically evaluate the materials retrieved for quality and relevance

- Assess its **value** – is this content of good **quality**?
  - Evaluation criteria
    - accuracy, authority, objectivity, currency, coverage

- Assess its **relevance** – is the content **useful** for your research?
  - Does it provide definitions and classifications?
  - Does it identify relevant variables?
  - Does it identify methodologies, experiments and data collection techniques used in related studies?
  - Does it identify theoretical frameworks?

Academic Rigour - Industry Relevance

EVALUATE INFORMATION

To determine trustworthiness of the material, try the **CRAAP test** developed by the *Meriam Library* at California State University, Chico[1]

CURRENCY
When was the information published and is that important to know?

RELEVANCE
How important is the information to your needs?

AUTHORITY
Who is the author and what are their credentials? Do they work for a reputable institution?
Was the information published in a peer-reviewed journal?

ACCURACY
How reliable is the information? Does it lack citations?
Are there spelling errors?

PURPOSE
Is it a well-balanced independent piece of research, or intended to sell a product or idea?

1. http://www.csuchico.edu/lins/handouts/eval_websites.pdf

At the library: Sign up for a one-to-one research consultation.

Reference: http://www.csuchico.edu/lins/handouts/eval_websites.pdf

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Organising content

Use a graphic organiser

- Matrix (areas of studies vs variables – compare issues covered in different articles)

Articles	Methodologies	Service innovation practices						
		Customer experience management	Investment in employee performance	Managerial process innovation	Brand differentiation	Product development/ innovation	Project learning and communication	Use of customer information
Atuahene-Gima (1996)	Survey	▪	▪	▪		▪		
Avlonitis et al. (2001)	Survey			▪		▪		
Berry et al. (2006)	Theoretical	▪	▪	▪	▪			
Blazevic & Lievens (2004)	Survey						▪	
Blazevic et al. (2003)	Case(s)						▪	
Chan et al. (1998)	Survey			▪				
Crawford & Di Benedetto (2002)	Theoretical + Case					▪		

Chen, J.S. & Tsou, H.T. (2007). "Information technology adoption for service innovation practices and competitive advantage: the case of financial firms" Information Research, 12(3) paper 314. [Available at http://www.informationr.net/ir/12-3/paper314.html]

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Summarising

- Use your own words to summarise the information captured in the matrix or your notes.

- Describe what each study has in common or how they contradict each other.

- Build bridges between the different areas that you review; look for convergence or divergence of ideas; identify similarities or differences amongst important variables, theories, methodologies and findings.

- Identify gaps or evidences which are lacking and use them to highlight the need to research the topic further in relation to your current research work.

Writing Your Literature Review

1. **Writing the introduction**
   - Define the issue or area of concern, thus providing the context for reviewing the literature
   - Point out overall trends or gaps in research or new perspective of immediate interest
   - Identify your research question(s)

2. **Writing the body of the literature review**
   - Group research studies according to common denominators (e.g. qualitative versus quantitative approaches)
   - Compare and contrast these studies
   - Provide brief summary sentences to aid in understanding comparisons and analyses

3. **Writing the conclusion**
   - Summarize major contributions of significant studies, maintaining the focus established in the introduction
   - Evaluate the current "state of the art" for the body of knowledge reviewed
   - Provide some insight into the relationship between the focus of the literature review and a larger area of study such as a discipline or a profession

✓ **Write to understand**
✓ **Write to be understood**

Structure of a research paper

- Title
- Abstract
- Introduction
- Literature Review ⬅
- Methodology
- Findings and Discussions
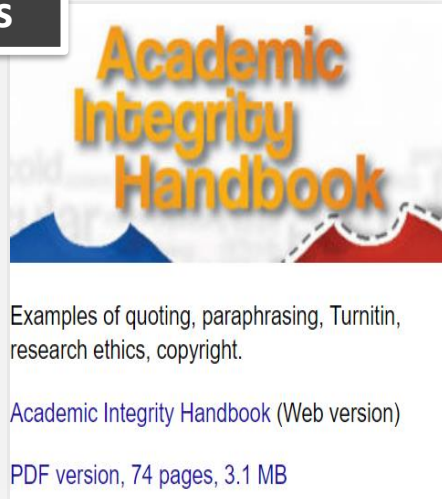- Conclusions and Recommendations
- Bibliography ⬅
- Appendices

Academic Integrity @ NTU

http://www.ntu.edu.sg/ai/Pages/index.aspx

"The highest level of intellectual honesty must be reflected in all aspects of learning, evidenced by original work, and proper referencing when acknowledging the work of others."

Additional Resources

Academic Integrity Handbook

Examples of quoting, paraphrasing, Turnitin, research ethics, copyright.

Academic Integrity Handbook (Web version)

PDF version, 74 pages, 3.1 MB

(Source: http://www.ntu.edu.sg/ai/Pages/index.aspx)

Plagiarism

"To use or pass off as one's own, the writings or ideas of another, without acknowledging or crediting the source from which the ideas are taken."

(Plagiarism as defined in NTU Honour Code)

Citations:
- Helps you to avoid accusations of plagiarism
- Documents your research
- Creates greater impact on your readers
- Strengthens your arguments

Avoiding plagiarism

1. To avoid plagiarism, you must give credit whenever you use any:
- idea, theory, illustration or opinion of other people
- statistics, graphs, drawings, images of other people
- quotation of actual spoken or written words of other people
- paraphrase of spoken or written words of other people

2. Follow CITATION RULES
- use in-text citations and end-of-text referencing
- create a bibliography or reference list
- formatting differs depending on the style you are using (e.g. APA, ASA, MLA, IEEE, Chicago, Numbered, etc.)
- use EndNote or other bibliographic management software

Citing Your Sources

✓ **To provide evidence and support for your idea, argument or thesis**

2.2. Evaluations of social technologies in specific learning settings

A number of researchers have examined the use of specific social technologies in particular discipline settings in various regions (e.g., Alam, 2008; Bennett et al., 2012; Irwin et al., 2012; Kabilan, Ahmad, & Abidin, 2010; Zeeng, Robbie, Adams, & Hutchison, 2009). In this paper we examine students' perspectives on the use of social technologies to support interactions in courses that have been taught face-to-face in Malaysian and Australian universities. Therefore, this review focuses on studies conducted in these countries.

Firstly Alam (2008) explored the use of wiking student engagement and interaction acro Australia. Feedback from students based on th these social technologies included positive e teractions with the lecturers through blogs 2008) Zeeng et al. (2009) reported on the s tion of Flickr, a photo sharing technology, in a subject within a design education programme i sity. The success of the use of Flickr was late dynamic, global classroom, introducing studen spectives, and to partnerships with another un one in the United States.

In-text citations

End-of-text referencing

References

Alam, S.L. (2008). To wiki or to blog: Piloting social software technologies for assessment in a large first year Information Systems class. *Paper presented at the Australasian Conference on Information Systems, Christchurch, New Zealand.*

Amador, P., & Amador, J. (2014). Academic advising via Facebook: Examining student help seeking. *The Internet and Higher Education, 21,* 9–16.

Augustsson, G. (2010). Web 2.0, pedagogical support for reflexive and emotional social interaction among Swedish students. *The Internet and Higher Education, 13*(4), 197–205.

Bennett, S., Bishop, A., Dalgarno, B., Waycott, J., & Kennedy, G. (2012). Implementing Web 2.0 technologies in higher education: A collective case study. *Computers & Education, 59*(2), 524–534.

Boud, D., Cohen, R., & Sampson, J. (2001). *Peer learning in higher education: Learning from and with each other.* London: Kogan Page.

Boyatzis, R. (1998). *Transforming qualitative information: Thematic analysis and code development.* Thousand Oaks, CA: SAGE.

Boyd, D. (2007). Social network sites: Public, private, or what? Knowledge Tree, 13. Retrieved from http://www.danah.org/papers/KnowledgeTree.pdf

APA
http://dx.doi.org/10.1016/j.iheduc.2015.02.004

Q & A

Quiz

Need Help?

@ **Get Expert Advice**

@ **Literature Search Consultation**

@ **Ask A Librarian**

@ **Contact** **NTU Library**

☎ 6790 5776

8395 0629

✉ library@ntu.edu.sg