

# **WOX7001 – RESEARCH METHODOLOGY**

Topic 3 – Literature Reviews

*Serving the Nation. Impacting the World.*

[www.um.edu.my](http://www.um.edu.my)



UNIVERSITI  
MALAYA

# What is Literature Review (LR)



*Serving the Nation. Impacting the World.*



UNIVERSITI  
MALAYA

# What is Literature Review (LR)

- A survey of scholarly sources on a specific topic
- It provides an overview of current knowledge, allowing you to identify relevant theories, methods, and gaps in the existing research
- As well as looking at what's already known, it seeks to point out what isn't yet known – often to provide a justification for your own research.
- As part of a longer piece of research, it's there to ensure you have a thorough understanding of the existing research in your area before embarking on your own

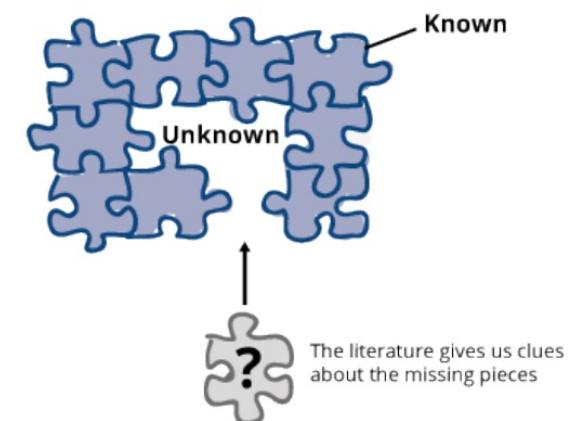
# The literature review is NOT...

- ...an annotated bibliography or laundry list of articles.
- ...a linear process; earlier steps may need to be revisited because of new or additional information found.
- ...an optional step when beginning research or exploring a topic.



# Why Write a Literature Review?

- Helps to determine whether the topic is worth studying
- Provides insight into ways in which the researcher can limit the scope to a needed area of inquiry
- The literature review gives you a chance to:
  - demonstrate your familiarity with the topic and scholarly context
  - develop a theoretical framework and methodology for your research
  - position yourself in relation to other researchers and theorists
  - show how your research addresses a gap or contributes to a debate



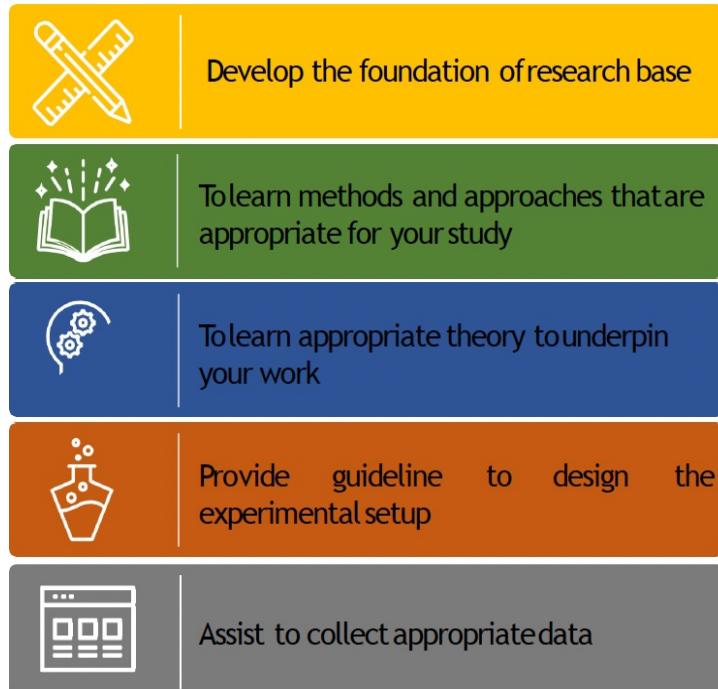
5

# Why Write a Literature Review?



*Serving the Nation. Impacting the World.*

# The Aim of Literature Review



Najafabadi et al. *Journal of Big Data* (2015) 2:1  
DOI 10.1186/s40537-014-0007-7

Journal of Big Data  
a SpringerOpen Journal

## RESEARCH

## Open Access

### Deep learning applications and challenges in big data analytics

Mayam M Najafabadi<sup>1</sup>, Flavio Villanustre<sup>2</sup>, Taghi M Khoshgoftaar<sup>1</sup>, Naeem Sellya<sup>3</sup>, Randall Wald<sup>1,3</sup> and Edin Muhamagic<sup>2</sup>

<sup>1</sup>Correspondence: [RwaidIqbal@udu.edu](#)  
Florida Institute of Technology,  
Central Florida, USA  
Full list of author information is available at the end of the article

**Abstract**  
Big Data Analytics and Deep Learning are two high-focus of data science. Big Data has become important as many organizations both public and private have been collecting massive amounts of domain-specific information, which can contain useful information about problems such as national intelligence, cyber security, fraud detection, risk management, and business intelligence. In the last few years, Google and Microsoft are analyzing large volumes of data for business analysis and decisions, impacting existing and future technology. Deep Learning algorithms extract high-level, complex abstractions as data representations through a hierarchical learning process. Complex abstractions are learnt at a given level based on relatively simpler abstractions formulated in the preceding level in the hierarchy. A key benefit of Deep Learning is the analysis and processing of unlabeled data. This makes it a valuable tool for Big Data Analytics where raw data is largely unlabeled and un-structured. In the present study, we explore how Deep Learning can be utilized for addressing some important problems in Big Data Analytics, including extracting complex patterns from massive volumes of data, semantic indexing, data tagging, fast information retrieval, and simplifying discriminative tasks. We also investigate some aspects of Deep Learning research that need further exploration to incorporate specific challenges introduced by Big Data.

**Keywords:** Deep learning; Big data

*Journal of Network and Computer Applications* 79 (2017) 41–67

Contents lists available at [ScienceDirect](#)

**Journal of Network and Computer Applications**

[journal homepage: www.elsevier.com/locate/jnca](#)



ELSEVIER

Review

### Malicious accounts: Dark of the social networks

Kayode Sakariyah Adewole<sup>a,\*</sup>, Nor Badru Anuar<sup>a,\*</sup>, Amirrudin Kamsin<sup>b</sup>, Kasturi Dewi Varathan<sup>a</sup>, Syed Abdul Razak<sup>b</sup>

<sup>a</sup> Faculty of Computer Science and Information Technology, University of Malaya, 50603 Kuala Lumpur, Malaysia

<sup>b</sup> Faculty of Arts and Social Sciences, University of Malaya, 50603 Kuala Lumpur, Malaysia

## ARTICLE INFO

**Keywords:**  
Online social network  
Social spam  
Malicious behavior  
Fake account  
Phishing detection  
Syll

## ABSTRACT

Over the last few years, online social networks (OSNs), such as Facebook, Twitter and Tuenti, have experienced exponential growth in both profile registrations and social interactions. These networks allow people to share different information ranging from news, photos, videos, feelings, personal information or research activities. The rapid growth of OSNs has triggered a dramatic rise in malicious activities including spamming, fake accounts creation, phishing, and malware distribution. However, developing an efficient detection system that can identify these malicious accounts is challenging due to the large volume of data and the complexity of the task. Researchers have proposed a number of features and methods to detect malicious accounts. This paper presents a comprehensive review of related studies that deal with detection of malicious accounts on social networking sites. The review focuses on four main categories, which include detection of spam accounts, fake accounts, malicious accounts and phishing. To achieve this, the review presents the most recent features and methods used in the literature to identify malicious accounts and their behaviors are proposed. The review considered only social networking sites and excluded studies such as email spam detection. The significance of proposed features and methods, as well as their limitations, are analyzed. Key issues and challenges that require substantial research efforts are discussed. In conclusion, the paper identifies the important future research areas with the aim of advancing the development of scalable malicious accounts.



**UNIVERSITI  
MALAYA**

*Serving the Nation. Impacting the World.*

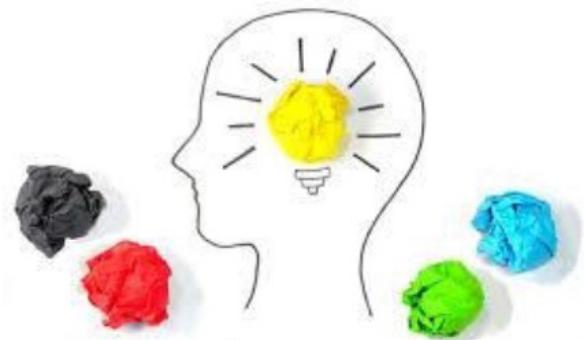
# Types of Review

Type of Review	Summary	Definition
<b>Narrative Review</b>	<i>What is out there and what are its attributes?</i>	<ul style="list-style-type: none"> <li>• Generic term.</li> <li>• An examination of past and/or current publications.</li> <li>• May cover a range of subjects with varying levels of completeness and comprehensiveness.</li> </ul>
<b>Scoping review</b>	<i>How much is out there?</i>	<ul style="list-style-type: none"> <li>• Preliminary assessment of size and scope of available literature.</li> <li>• Identify the extent and nature of past and current research.</li> </ul>
<b>State-of-the-art or science</b>	<i>What is new or current?</i>	<ul style="list-style-type: none"> <li>• Focus on current research and knowledge.</li> <li>• May offer new perspectives or identify areas for further research.</li> </ul>
<b>Critical review / Integrative</b>	<i>What are valuable works on this topic, and why? Where can these points lead?</i>	<ul style="list-style-type: none"> <li>• A critical evaluation of extensively researched literature selected for its contribution to the field or understanding of concept.</li> <li>• Describes degree of analysis with the hopes of deriving new theory.</li> </ul>
<b>Systematic review</b>	<i>What is out there on this particular concept with these pre-established conditions?</i>	<ul style="list-style-type: none"> <li>• Searching for literature and selecting based on pre-established criteria (subjects, study design, methodology, outcomes, year of publication).</li> <li>• Summarizing what is found (or summarizing the evidence).</li> </ul>

# How do I start a literature review?

## 1. Explore, select, then focus on a topic:

- Look at “recommendations for further research” in the conclusion of research articles.
- Use this to formulate your research question and goal or objective of the review.
- Determine the pre-established criteria (Generally for a systematic review)



# How do I start a literature review?

## 2. Gather relevant documents and information.

- Identify sources of information for your topic and field: library and information resources, organizations, special collections or archives, etc.
- Familiarize yourself with your organization's library or information services including interlibrary loan or document delivery.
- Read other literature reviews or review articles if they are available on a topic.

# How do I start a literature review?

## 2. Gather relevant documents and information.

- Utilize chain searching to find additional documents:
  - Also known as *pearl mining/ growing, citation analysis, reference searching, or citation mining*
  - *Backward searching:*
    - also known as **chain searching**, involves identifying and examining the references or works cited in an article.
    - a researcher examines sources cited by the references used in an initial article.
  - *Forward searching:*
    - is when a researcher identifies articles that cite an original article or work after it had been published.  
This type of search focuses on the publications created after an article's publication.

*Serving the Nation. Impacting the World.*

# Shapely Value Perspective on Adapting Transmit Power for Periodic Vehicular Communications

Publisher: IEEE

Cite This

PDF

Syed Adeel Ali Shah  ; Ejaz Ahmed ; Joel J. P. C. Rodrigues  ; Ihsan Ali ; Rafidah Md Noor  All Authors

23  
Paper  
Citations

559

Full  
Text Views



Forward  
Searching

Abstract

Document Sections

I. Introduction

II. Related Work

III. Work-Flow of ACo3 in a

## Abstract:

Periodic beacons in vehicular ad hoc networks are transmitted with high message frequency to achieve the higher level of awareness required for the vehicular safety applications. Currently, the existing 10-MHz control channel in the dedicated short range communication (DSRC) standard is not compliant with the communication requirements in vehicular safety applications, i.e., the stipulated amendments in the DSRC offer little relief to congest the channel, which adversely affects the network performance.

## References

### Citation Map

1. M. Sepulcre, J. Gozalvez, O. Altintas and H. Kremo, "Integration of congestion and awareness control in vehicular networks", *Ad Hoc Netw.*, vol. 37, pp. 29-43, Feb. 2016.

[CrossRef](#) [Google Scholar](#)

2. R. A. Uzcategui, A. J. D. Sucre and G. Acosta-Marum, "Wave: A tutorial", *IEEE Commun. Mag.*, vol. 47, no. 5, pp. 126-133, May 2009.

[Show in Context](#) [View Article](#) [Full Text: PDF \(140KB\)](#) [Google Scholar](#)

3. S. A. A. Shah, E. Ahmed, F. Xia, A. Karim, M. Shiraz and R. M. Noor, "Adaptive beaconing approaches for vehicular ad hoc networks: A survey", *IEEE Syst. J.*

[Show in Context](#) [CrossRef](#) [Google Scholar](#)

4. H. Lu and C. Poellabauer, "Balancing broadcast reliability and transmission range in VANETs", *Proc. IEEE Veh. Netw. Conf. (VNC)*, pp. 247-254, Dec. 2010.

[Show in Context](#) [CrossRef](#) [Google Scholar](#)

5. R. Chen, W.-L. Jin and A. Regan, "Broadcasting safety information in vehicular networks: issues and approaches", *IEEE Netw.*, vol. 24, no. 1, pp. 20-25, Jan./Feb. 2010.

[Show in Context](#) [View Article](#) [Full Text: PDF \(94KB\)](#) [Google Scholar](#)

Backward  
Searching



# How do I start a literature review?

## 3. Organize documents and information.

This will depend on preferences based on your workflow, available technology, and working *solo or with others*.

- Use citation management software (EndNote, RefWorks, etc.).
- Identify other means of saving documents based on your needs and workflow (Google Docs, DropBox, etc.).
- Use a qualitative data analysis software (QDAS) as needed for content analysis.
  - » Examples: Atlas.TI (available through FAU Virtual Apps), MAXQDA, Nvivo
- Organize what is found for further exploration (literature review matrix).



13

# Planning your Literature Search

- Some parameters must be considered:
  - » How far back will you look for your sources? The last 5 / 10 years?
  - » What source do you want to cover?
- If the topic is not very specific, seek clarification from your supervisor.
  - » Roughly how many sources should need to include?
  - » What type of sources (books/journal/proceeding)?
  - » Is the source you are using is trusted in your field? (Checking using Web of Science / Scopus)

# Planning your Literature Search

- Four stages of the literature review:
  - » Problem formulation – which topic or field is being investigated and what are the main issues?
  - » Literature search – finding materials relevant to the subject being explored
  - » Data evaluation – determining which literature makes a significant contribution to the understanding of the topic
  - » Analysis and interpretation – discussing the findings and conclusions of literature

# How To Read the Material



- Reading for the big picture
  - Read the easier works first
  - Skim the document and identify major concepts
  - After you have a broad understanding of the 10 to 15 papers, you can start to see patterns:
    - Groups of scientists argue or disagree with other groups.
    - For example, Some researchers think x causes y, others that x is only a moderating variable

(Carroll, 2006)

# How To Read the Material

## Step 1: Read the abstract

- Decide whether to read the article in detail

## Step 2: Read introduction

- It explains why the study is important
- It provides review and evaluation of relevant literature

## Step 3: Read Method with a close, critical eye

- Focus on participants, measures, procedures

## Step 4: Evaluate results

- Do the conclusions seem logical
- Can you detect any bias on the part of the researcher?

## Step 5: Take discussion with a grain of salt

- Edges are smoothed out
- Pay attention to limitations

(Carroll, 2006)

17

*Serving the Nation. Impacting the World.*

# How to Write Literature Review

- Process of Review Development
  - Formulate a Problem
  - ↓
  - Search
  - ↓
  - Refine Topic
  - ↓
  - Analyze
  - ↓
  - Construct Review

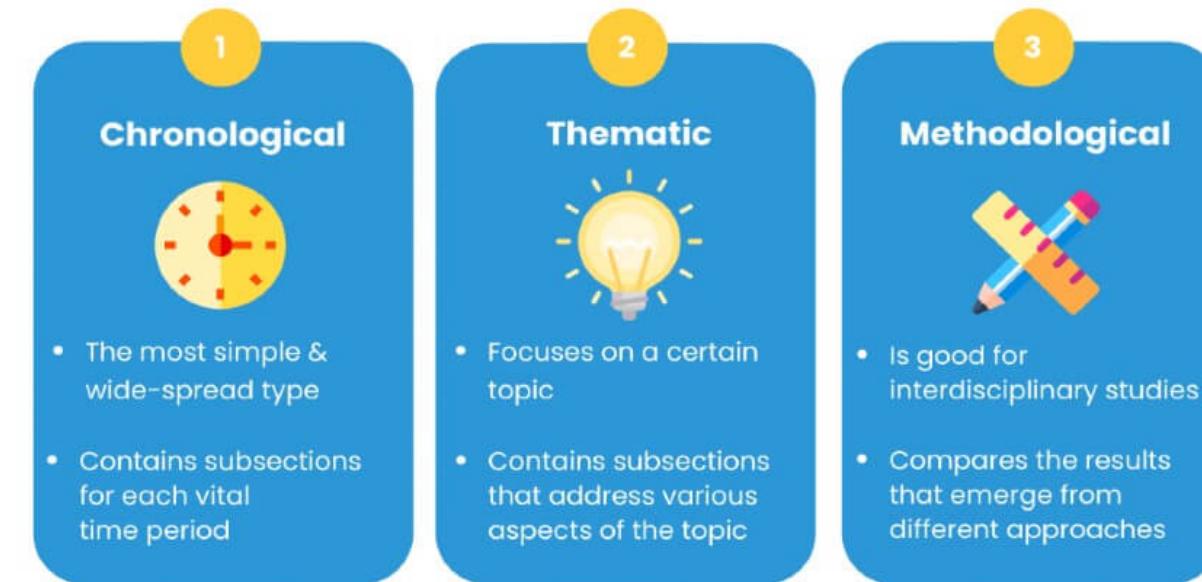


# How to Write Literature Review

## Literature Review for Introduction vs. Discussion

Introduction	Discussion
	
Use previous literature to introduce your research	Use previous studies to explain or reinforce your findings
	
Discuss subject-specific literature after the general introduction	Only include references that are directly relevant to the topic/target audience.
	
Identify knowledge gaps based on previous literature	Do not cite review articles unless essential

# Structure of Literature Review



# Literature Review Outline Example

**Title:** Research in Classical Literature

## Introduction

Hook

## Body

Definition of Classical Literature

Chronological Trends in the development of classical literature

Seminal research studies in classical literature

Research on Classical Characters

Research on the styles of classical literature

Research on the themes of classical literature

## Conclusion

The future of research in classical literature

# The Literature Review Matrix

- The categories can be changed to focus on the needs of the assignment or norms of the discipline.

Citations	Theoretical/ Conceptual Framework	Research Question(s)/ Hypotheses	Methodology	Analysis & Results	Conclusions	Implications for Future Research	Implications for Practice
Marley, K.M. (July 2017) "Potential of Spider Silk in Biomaterials" <i>Jnl. of Experimental Biomaterials</i>	Review of research articles on spider silk use as biomaterials	Spider silk has many potential uses as biomaterials, particularly wound and incision care	IDs research articles from last 10 years that were done in a lab; reviews 7 articles that fell within criteria	N/A	Spider silk may be a better biomaterial for wounds and incisions than synthetic materials.	More research needs to be done on uses of spider silk for wound and incision care	Patients may have faster and more thorough recovery than if synthetic materials were used.
Article 2							
Article 3							

**TABLE 16.** Review of Some articles presented in Section IV and V.

Application	Paper	Brief description	Performance metrics	EH	SWIPT	CoR	Results/Findings	Research direction
5G Network	[116]	Surveyed the existing cell association and power control schemes used in 5G networks.	---	✓	✓	✓	Outlined the challenges for interference management in 5G multi-tier networks.	<i>Combining hybrid cell association methods with the prioritized power control scheme for the 5G network.</i>
	[117]	Surveyed user association schemes used in 5G. Heterogeneous networks, massive MIMO networks, mmWave scenarios, EH and CoR have been surveyed.	---	✓	✓	✓	Highlighted the inherent features of the user association corresponding 5G enabling technology.	<i>Self-Organizing Networks (SON), Cloud radio access network (C-RAN) and full-duplex communication.</i>
	[123]	Sub-carrier allocation based SWIPT algorithm was proposed for 5G OFDM communication systems considering AF relay.	Convergence performances.	✓	✓	✓	Information decoding rate improves with the increase of total transmit power for the fixed threshold of harvested energy. Cooperation gives higher information decoding rate than the direct transmission case.	<i>The scheme can be applied with wireless caching and PHY layer security.</i>
WSN	[125]	Optimal power allocation and relay selection for energy efficient clustered WSN.	Convergence performances. Energy efficiency vs maximum allowed transmit power.	✓	✓	✓	Power splitting ratio plays an important role in relay selection but depends on minimum harvested energy requirement. 29bits/mJ from 25dB	<i>Issues related to the mobility of the sensor node, choosing the cluster head based on the battery power level, the positioning of the sensors and fading of the channels.</i> <i>Works on energy storage capability and PHY layer security.</i>
	[126]	Propose a cooperative transmission scheme based on distributed space-time block coding for clustered WSN.	Overall energy consumption vs packet error rate, number of a cluster member, inter-cluster distance.	✓	✗	✓	Having more nodes in a cluster may not be more energy efficient. Total energy consumption can be minimized by optimally adjusting the transmit energy levels.	
	[130]	Proposed a charging-aware routing protocol (J-RoC) and charging scheme to prolong WSN lifetime	Network lifetime	✓	✗	✓	Proactive guide on the routing activities of the charging system can prolong more lifetime of WSN	<i>Mobile wireless charging system, proper positioning of it and mobile relaying.</i>
	[131]	Considered the mobile charging vehicle periodically traveling inside the WSN for charging each sensor node's battery wirelessly.	Total cycle time, and individual charging time at each node.	✓	✗	✓	Introduced a new concept called renewable energy cycle.	

# How to Find Literature (Academic Search Engine)



Serving the Nation. Impacting the World.

# Referencing

- A standardized method of **acknowledging sources** of information and ideas that you have used in your assignment in a way that uniquely identifies their source
- Direct **quotations, facts and figures** as well as **ideas and theories**, from both published and unpublished works must be referenced
- There are many acceptable forms of **referencing styles**.
- When you cite Internet resources, you need to add date of access.
  - » E.g. World Spider Catalog (2020) Natural History Museum Bern.
  - » Available via <http://wsc.nmbe.ch> (accessed on 25 July 2020)

Authors	Year	Article Title
Adrián-Serrano, S., Lozano-Fernandez, J., Pons, J., Rozas, J., & Arnedo, M. A. (2021).	On the shoulder of giants: Mitogenome recovery from non-targeted genome projects for phylogenetic inference and molecular evolution studies.	<i>Journal of Zoological Systematics and Evolutionary Research</i> , 59(1), 5-30.
Volume	Issue	Page No.

MLA Adrián-Serrano, Silvia, et al. "On the shoulder of giants: Mitogenome recovery from non-targeted genome projects for phylogenetic inference and molecular evolution studies." *Journal of Zoological Systematics and Evolutionary Research* 59.1 (2021): 5-30.

APA Adrián-Serrano, S., Lozano-Fernandez, J., Pons, J., Rozas, J., & Arnedo, M. A. (2021). On the shoulder of giants: Mitogenome recovery from non-targeted genome projects for phylogenetic inference and molecular evolution studies. *Journal of Zoological Systematics and Evolutionary Research*, 59(1), 5-30.

Chicago Adrián-Serrano, Silvia, Jesus Lozano-Fernandez, Joan Pons, Julio Rozas, and Miquel A. Arnedo. "On the shoulder of giants: Mitogenome recovery from non-targeted genome projects for phylogenetic inference and molecular evolution studies." *Journal of Zoological Systematics and Evolutionary Research* 59, no. 1 (2021): 5-30.

Harvard Adrián-Serrano, S., Lozano-Fernandez, J., Pons, J., Rozas, J. and Arnedo, M.A., 2021. On the shoulder of giants: Mitogenome recovery from non-targeted genome projects for phylogenetic inference and molecular evolution studies. *Journal of Zoological Systematics and Evolutionary Research*, 59(1), pp.5-30.

Vancouver Adrián-Serrano S, Lozano-Fernandez J, Pons J, Rozas J, Arnedo MA. On the shoulder of giants: Mitogenome recovery from non-targeted genome projects for phylogenetic inference and molecular evolution studies. *Journal of Zoological Systematics and Evolutionary Research*. 2021 Jan;59(1):5-30.

# How to Avoid Plagiarism?

## CITE CORRECTLY

- Any time you use words from another source , such as a Web site, book, journal article , you must give proper credit to the source

## USE QUOTES EFFECTIVELY

- Changing a few words here and there is not enough to avoid plagiarism. Either put the exact phrase you are quoting in quotation marks or rewrite it entirely in your own words
- Quoting extensively from another source, even if you do it properly, is not appropriate for a research paper.
- Use quotations to support your arguments or clarify important points, but create your own argument using your own words." (Penn State, 2012)

## PARAPHRASE CORRECTLY

- "In a paraphrase, you rewrite what someone else has said in your own way. Just as you have a personality that is different from everyone else's, you as a writer have your own voice and style. When you write, even when you are paraphrasing, your writing should sound like it came from you, not from someone else." (Penn State, 2012)

# Thank You!

*Serving the Nation. Impacting the World.*



[www.um.edu.my](http://www.um.edu.my)



[universityofmalaya](#)



[unimalaya](#)



[uniofmalaya](#)



UNIVERSITI  
MALAYA