

Modern Research & Literature Search

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Write your expectations for the Lecture?



Complete this take in 2 minutes

Learning outcome for this lecture?

At the end of the lecture, students should be able to:

- Explain the role and importance of modern research
- Understand the importance for reviewing existing literature in research
- Apply different strategies to conduct a search of the relevant literature on a chosen topic
- Cite and reference reviewed literature appropriately

Definition of Research

- ... is a search for knowledge in any branch of knowledge

“Research is creating new knowledge.”

... Neil Armstrong

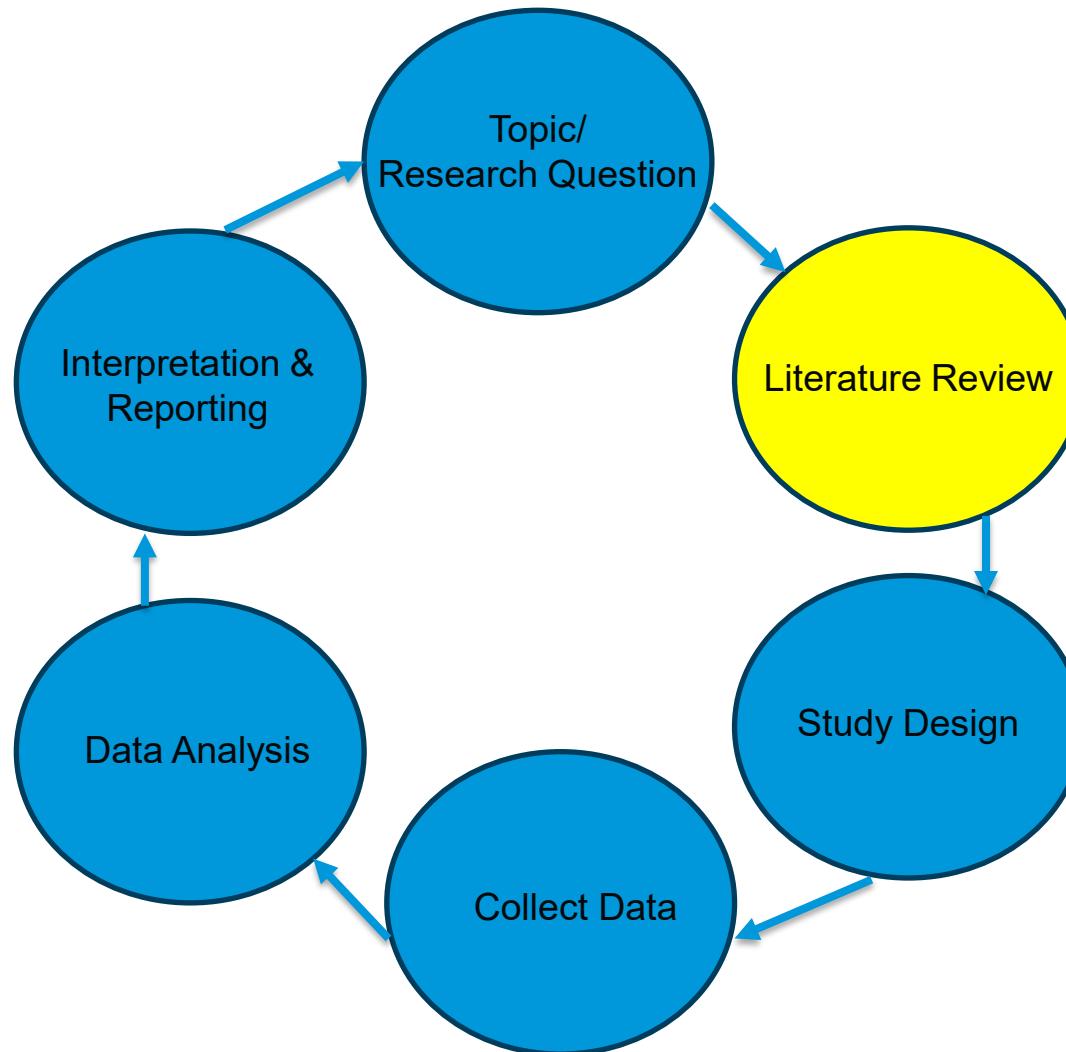
- ... is a process of investigation or inquiry
- It is a journey from the known to unknown

Research is a hunt for the truth !

- **Systematic**
 - It follows a structured process:- from identifying a problem, reviewing literature, forming hypotheses, collecting data, analyzing results, to drawing conclusions.
- **Ethical**
 - Researchers follow ethical guidelines to protect participants' rights and ensure integrity.
- **Reproducible**
 - The procedures and methods are documented clearly so that other researchers can reproduce the study to verify results (transparency).

- **Objective and Unbiased**
 - Modern research strives to minimize personal biases through standardized methods, peer review, and transparent reporting.
- **Innovative**
 - It often explores new areas, improves existing knowledge, or challenges accepted ideas.
- **Communicable**
 - Findings are shared through publications, presentations, and open data to contribute to the broader knowledge base.

Steps in Research Process



What is a Literature Review

According to Creswell (2005), ... “is a **written summary** of journals articles, books and other documents that **describes the past and current state of information**, organizes the literature into topics and documents a need for a proposed study”

.... is a critical look at the existing research that is of significant to a chosen topic or area of study

... is an account of what has been published by accredited scholars and researchers (Taylor, 2011)



Credit: Nikolaeva Elena

Importance of Literature Review

- It increases your knowledge on the problem you want to investigate (*and this may assist you in refining your problem statement*)
- It prevents you from duplicating work that is already done
- It enables you to be familiarize your self with different research methods
- It gives you confidence on why your research project is needed
- It helps to build on previous knowledge

Qualities of Good Literature Review

- It must be comprehensive
- It should include up-to-date literature
- It should be reproducible
- It should be systematic
- It should be well written and free from bias
- Accurate citations and references should be provided
- The literature should be clearly searched and selected

Sources of Literature

- Journal articles
- Electronic databases & Webpages
- Books & Monographs
- Conference Paper/Proceedings
- Theses & Dissertations
- Technical Research Reports
- Recorders & Reports
- Encyclopedia & Dictionary
- Newspaper & Magazines

Step 1: Define your research topic

Example:

Prevalence rate of helmet usage among motorcycle riders
and associated risk factors

➤ Make a list of keywords out of your topic

- ✓ Motorcycle
- ✓ Helmet usage
- ✓ Risk factors
- ✓ Road traffic crashes,
- ✓ Motorcycle rider's fatalities

Step 1: Define your research topic

- List of keywords in published documents



The effect of road and environmental characteristics on pedestrian hit-and-run accidents in Ghana

Eric Nimako Aidoo*, Richard Amoh-Gyimah, Williams Ackaah

CSIR-Building and Road Research Institute, Kumasi, Ghana

ARTICLE INFO

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Keywords:
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Hit-and-run
Road accident
Logistic regression
Ghana

ABSTRACT

The number of pedestrians who have died as a result of being hit by vehicles has increased in recent years, in addition to vehicle passenger deaths. Many pedestrians who were involved in road traffic accident died as a result of the driver leaving the pedestrian who was struck unattended at the scene of the accident. This paper seeks to determine the effect of road and environmental characteristics on pedestrian hit-and-run accidents in Ghana. Using pedestrian accident data extracted from the National Road Traffic Accident Database at the Building and Road Research Institute (BRRI) of the Council for Scientific and Industrial Research (CSIR), Ghana, a binary logit model was employed in the analysis. The results from the estimated model indicate that fatal accidents, unclear weather, nighttime conditions, and straight and flat road sections without medians and junctions significantly increase the likelihood that the vehicle driver will leave the scene after hitting a pedestrian. Thus, integrating median separation and speed humps into road design and construction and installing street lights will help to curb the problem of pedestrian hit-and-run accidents in Ghana.

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1. Introduction

Death and injury associated with road traffic accidents are global phenomena that require urgent attention (Tay et al., 2009). According to Peden et al. (2004), approximately 1.2 million people

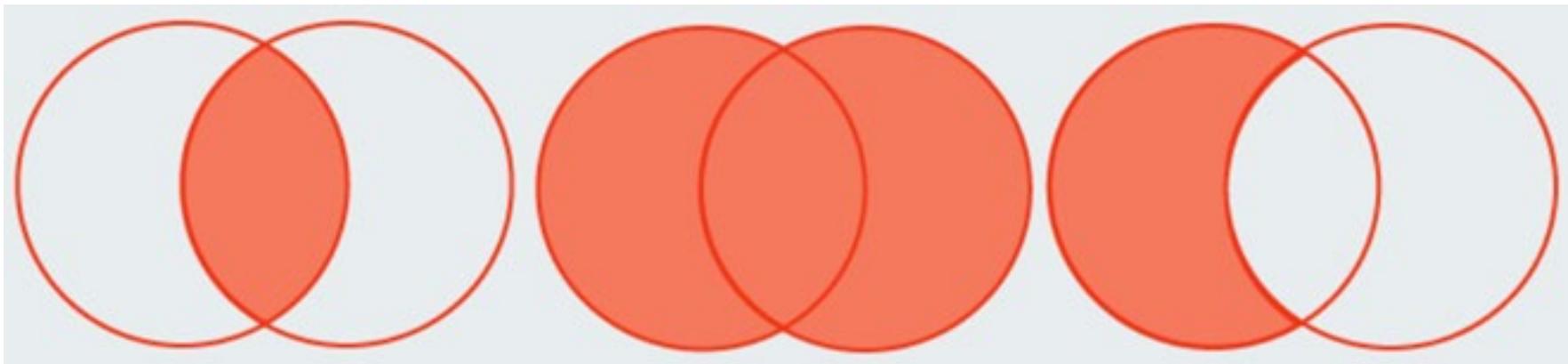
of pedestrians is the leading cause of fatalities among urban road users in Ghana (Ackaah and Adonteng, 2011; Damsere-Derry et al., 2010). Ackaah and Adonteng (2011) showed that pedestrian collision alone resulted in approximately 51.7% of all fatal accidents in Ghana during the period 2005–2007.

Step 2: Conduct a literature search

- Use your keywords to begin searching for sources
- Useful databases
 - ✓ [Google Scholar](#)
 - ✓ [Discovery](#)
 - ✓ [JSTOR](#)
 - ✓ [Inspec](#)
 - ✓ [EBSCO](#)
 - [ScienceDirect](#)
 - [Taylor & Francis](#)

Step 2: Conduct a literature search

- Apply boolean operators in your search
 - ✓ AND
 - ✓ OR
 - ✓ NOT



AND

OR

NOT

Step 2: Conduct a literature search

≡ Google Scholar motorcycle and helmet usage 

Articles	About 25,300 results (0.09 sec)
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Any time	[HTML] Improper motorcycle helmet use in provincial areas of a developing country	[HTML] sciencedirect.com
Since 2023	LP Li, GL Li, QE Cai, AL Zhang, SK Lo - <i>Accident Analysis & Prevention</i> , 2008 - Elsevier	
Since 2022	... Motorcycle helmet wearing rates remain low in smaller cities ... , and behavior of motorcyclists towards helmet use in two mid-... secondary streets; all motorcycles passing by were observed. ...	
Since 2019		
Custom range...		

Sort by relevance	[HTML] Detecting motorcycle helmet use with deep learning	[HTML] sciencedirect.com
Sort by date	FW Siebert, H Lin - <i>Accident Analysis & Prevention</i> , 2020 - Elsevier	

Any type	... , the number and position of riders on the motorcycle , as well as their helmet use ... helmet use data reveals a high accuracy of our approach. Our algorithm registers motorcycle helmet use ...	
Review articles		

<input type="checkbox"/> include patents	Compliance with the 1992 California motorcycle helmet use law.	[PDF] aphpublications.org
<input checked="" type="checkbox"/> include citations	JF Kraus, C Peek, A Williams - <i>American Journal of ...</i> , 1995 - ajph.aphpublications.org	Full View

<input checked="" type="checkbox"/> Create alert	... strategy for reducing motorcycle -related head trauma.-7,9-13 ... helmet use before and after the implementation of the California mandatory helmet use law and compares helmet use with ...	
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	[HTML] Barriers to, and factors associated, with observed motorcycle helmet use in Vietnam	[HTML] sciencedirect.com
	DV Hung, MR Stevenson, RQ Ivers - <i>Accident Analysis & Prevention</i> , 2008 - Elsevier	

Literature Search Strategies

Step 2: Conduct a literature search

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motorcycle and helmet usage X Heriot-Watt Resources

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Material Type ...

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Subject ...

- Science & Technology (199)
- Motorcycles (173)
- Life Sciences & Biomedicine (148)
- Helmets (143)
- Humanities (120)

<https://browzine.com/libraries/1579/subjects>

ARTICLE
Determinants of standard motorcycle safety helmet usage among child pillion riders
Kulanthayan, K.C. Mani ; Teow, Hui Fang ; Tamil Selvan, Hari Krishnan ; Yellappan, Kaviyarasu ; Ulaganathan, Vaidehi
Oxford: Elsevier Ltd
Transportation research. Part F, Traffic psychology and behaviour, 2020, Vol.74, p.408-417
“ ...% of motorcycle crash fatalities in Malaysia. The aim of this study is to explore the use of motorcycle helmets and the determinants of standard helmet usage among child pillion riders...”
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ARTICLE
Standard motorcycle helmet usage and its effect on road traffic safety in the two major cities of Vietnam
Trinh Thuy Anh
HO CHI MINH CITY OPEN UNIVERSITY JOURNAL OF SCIENCE
Ho Chi Minh City Open University Journal of Science - Economics and Business Administration, 2020, Vol.1 (1), p.64-76
“ Then road safety situation, helmet usage, regulation and enforcement were analyzed. Base on these, proposal to improve road safety in the two major cities in Vietnam is going to be discussed.”
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ARTICLE
Component design of foldable helmet for motorcycle usage: Strength analysis under static loading
Denatra, G C ; Basri, G F H ; Anggoro, M A ; Triawan, F
Bristol: IOP Publishing
IOP conference series. Materials Science and Engineering, 2021, Vol.1098 (6), p.62083
“ Abstract A helmet is used to protect the head of motorcycle rider especially when an accident happens by absorbing the impact/crash load.”

Step 3: Critically evaluate and select sources

- Since you cannot read everything, you need to consider:
 - ✓ What problem is the author(s) addressing
 - ✓ How recent is the study
 - ✓ What are the key theories, models and methods used
 - ✓ What are the results and conclusions of the study
 - ✓ How does the study relate to other existing literature in the field (i.e. does it confirm, add to, or challenge the established knowledge)
 - ✓ What are the strength and weakness of the study
 - ✓ How credible is the source (publisher)

Literature Search Strategies

Step 3: Critically evaluate and select sources

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 “Abstract A helmet is used to protect the head of motorcycle rider especially when an accident happens by absorbing the impact/crash load...”

<https://browzine.com/libraries/1579/subjects>

Step 5: Write the literature review

- Synthesis and report a summary of the selected literature:
 - ✓ What problem is the author addressing
 - ✓ Where was the study done (location)
 - ✓ What method of data collection and analysis was used
 - ✓ What were the main findings (in relation to your work)
 - ✓ What is the gap

Referencing and Citing a Literature

- “Give credit where credit is due”
- It is important to give credit to authors whose ideas, words, etc are used in your scientific write-ups or reports
- A **reference** is a detailed bibliographic description of the literature from which you gained your information
- References are briefly **cited** within the text, and then given in full at the end of your work in a reference list
- Any other items read for background information but not referred to in the text should be given in full at the end of your work in a **bibliography**

Why should I reference?

- Enable the reader to locate the sources you have used
- Help support your arguments and provide your work with credibility
- Show the scope and breadth of your research
- Acknowledge the source of an argument or idea
 - Failure to do so could result in a charge of **plagiarism**

What is Plagiarism

- Also known as “academic theft”
- It is using someone’s words and/or ideas without due credit to holders of such ideas, thus presenting it as one’s own



Image credit: picksuperstar on freepik

- Copying and pasting verbatim from a source (internet, textbook, journal etc.)
- Incorporating a direct phrase or sentence that sounds nice into your work without citation and/or quotation marks

Avoid Plagiarism

- Think through the material as you read along before hurrying to write it down
- Write main ideas and make linkages
- Jotters may be helpful
- Write full citations during the note-taking period or use EndNote/ Mendeley etc to keep track
- Make it a habit to **paraphrase** every relevant sentence you write down from a source

Referencing Styles

- Literally hundreds of different referencing styles
 - ✓ Harvard, APA, Chicago, IEEE, etc.
- Differs with academic discipline and publishing houses
 - ✓ Elsevier, Springer, Taylor and Francis, Emerald, etc
- Whichever style you use, it is important that you are consistent in its application

In-text Citation Styles

- Generally, in internal references the surname of the author and year of publication are cited at the end of the sentence
- If author name is James Robert **Jones** and year of publication is 2012
 - (Jones, 2012)
- For two authors
 - (Bellamy and Taylor, 1998)
- For 3 or more authors cite only the first followed by “*et al.*” (which means “and others”)
 - (Aidoo et al., 2021)

In-text Citation Styles

- If author's name is part of a sentence put only the year in brackets
 - Jones (2012) has provided evidence to support this statement
- For two authors
 - Bellamy and Taylor (1998)
- For 3 or more authors cite only the first followed by “*et al.*” (which means “and others”)
 - Aidoo *et al.* (2021)

In-text Citation Styles

- If an author has published more documents in the same year, distinguish them by adding lower-case letters
 - Smith (2014a, 2014b, 2014c)...
- If you find information in more than one source, you may want to include all references to strengthen your argument
 - Place them in order of publication date (earliest first)
 - Separate the references using semi-colon (;
- Several writers (Jones, 2011; Smith, 2014; Aidoo et al. 2021) have reported that...

Reference List/Bibliography

- Full references of sources used should be provided as a reference list at the end of your work
- This list of references is arranged alphabetically usually by author
- You may also be required to include a **bibliography** which should list not only all items used within the text but also any other sources you have read as part of your research
- Use referencing software if possible
 - ✓ Endnote, Mendeley

Example of Reference List

- Aidoo, E.N., Ampofo, R.T, Awashie, G.E., Appiah, S.K., Adebanji, A.O. (2021). Modelling COVID-19 incidence in the African sub-region using smooth transition autoregressive model. *Modeling Earth Systems and Environment*, 8:961-966.
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Assignment on Referencing

Learn how to reference the following in your report:

- Journal articles
- Book
- Book chapter
- Conference paper
- Webpage
- Newspaper article
- Reports from corporate body
- Thesis
- software

Thank You

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