Faculty of Engineering

KOYA UNIVERSITY

Research Methodology

Department of Software Engineering

Bachelor studies

Prof. Salah I. Yahya

Schedule of Session #1

- [ ] What is Research methodology?
- [ ] Six Reasons Why Research is Important?
- [ ] Publishing a Research Article: Is it Science or Art?
- [ ] Interesting information
- [ ] Research Method vs. Research Methodology
- [ ] Aims and Objectives of a Research
- [ ] Research Structure, Doing Research
- [ ] Research Article Structure
- [ ] How to Write a Research Paper title
- [ ] How to Write a Research Abstract
- [ ] Abstract vs. Conclusion
- [ ] Types of Research Data
- [ ] Types of Research
- [ ] Types or Academic papers
- [ ] Tense Tendencies in Academic Texts

1. What is research methodology?

Research methodology simply refers to the practical “how” of any given piece of research. More specifically, it’s about how a researcher systematically designs a study to ensure valid and reliable results that address the research aims and objectives.

For example, how did the researcher go about deciding:

1. What data to collect (and what data to ignore)
2. Who to collect it from (in research, this is called “sampling design”)
3. How to collect it (this is called “data collection methods”)
4. How to analyse it (this is called “data analysis methods”)

2. Six Reasons Why Research is Important?

1. Acquire Knowledge Effectively

The most apparent reason to conduct research is to understand

The goal of the research is to broaden our understanding.

Research enables you to seek out the most up-to-date facts.

Research provides a solid basis for formulating thoughts and

Like any other technical work, a business demands a lot of

People can maximize their potential and achieve their goals through various opportunities provided by research. These include getting jobs, scholarships, educational subsidies, projects, commercial collaboration, and budgeted travel.

3. Publishing a Research Article: Is it Science or Art?

Many young researchers find it extremely difficult to write scientific articles, and few receive specific training in the art of presenting their research work in written format. Yet, publication is often vital for career advancement, to obtain funding, to obtain academic qualifications, or for all these reasons.

Publishing a research article is

80% a scientific procedure following the standards and guidelines

20% an Art.

By Experience

3. Interesting information

1. Examples of the shortest research papers; click here
2. Published research paper with highest number of authors; click here
3. The research paper with highest number of citations; click here Click here
4. Highest Impact Factor Journal; click here

4. Research Method  Research Methodology

Some scholar confused Research Method with research Methodology.
These two are not the same

Why is it important to understand the difference between them?

- It shows that we, as researchers, have a strong grasp of the basics in research;
- Help us come with a proper research design.

4. Research Method  Research Methodology

Research methodology is the justification for using a particular research method.

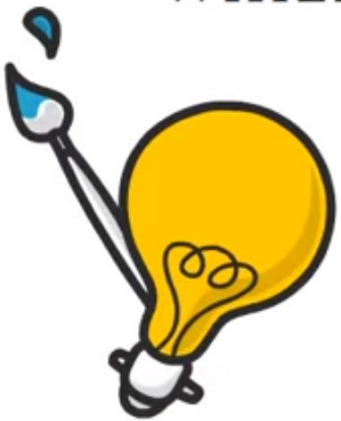
Research Methodology is the 'plan' that explain Why

A research method is the tool used in carrying out the research

4. Research Method VS Research Methodology

viewed as the body of knowledge which attempts to explain or understand how a research is done

THE RESEARCH **METHODOLOGY**, IS THE **THEORETICAL** POSITIONING OF THE RESEARCH, WHILE RESEARCH **METHOD** IS THE **"DOING"** OF THE RESEARCH ITSELF.



refers to the specific process or steps that the researcher may follow in undertaking the study

5. Aims and Objectives of a Research.

What are aims & objectives?
If you build a house without foundations, it's pretty obvious what will happen. It'll collapse. Your thesis is the same; fail to build the foundations and your thesis just won't work.

Your *aims* and *objectives* are those foundations. If you write your aims and objectives clearly then you'll make your reader's life easier.

5. Aims and Objectives of a Research

- The research *aim* focus on what the research project is intended to achieve; research *objectives* focus on how the aim will be achieved.
- Research *aims* are relatively broad; research *objectives* are specific.
- Research *aims* focus on a project's long-term outcomes; research *objectives* focus on its immediate, short-term outcomes.

5. Aims and Objectives of a Research

Your aims answer the question, 'What are you doing?' The objectives are the answer to the question, 'How are you doing it?'

Research *objectives* refer to the steps that you will take to achieve your *aims*.

When you write them, make sure they are **SMART**.
Specific: talk in a precise and clear way about what you are going to do.
Measurable: how will you know when you have achieved your aim?
Achievable: make sure that you aren't overly ambitious.
Realistic: recognise the time and resource constraints that come with doing a PhD and don't attempt to do too much.
Time constrained: determine when each objective needs to be completed.

5. Difference between Research Aims and Objectives

Aim:

To understand the contribution that local governments make to national level energy policy.

Objectives:

1. Conduct a survey of local politicians to solicit responses.
2. Conduct desk-research of local government websites to create a database of local energy policy.
3. Interview national level politicians to understand the impact these local policies have had.
4. Data will be coded using a code book derived from dominant theories of governance.

Any more examples?

6. Doing Research

Stage 1; Getting started
- Deciding what interests you
- Finding relevant previous research
- Developing your own project

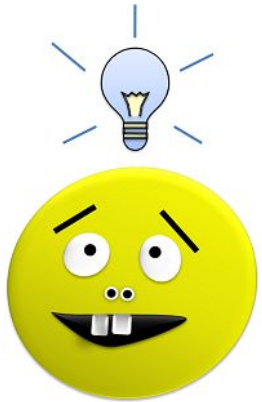
Your research questions

Stage 2: Designing research
- Finding methods and data types to fit your questions
- Utilising research tools
- Assessing feasibility

Your research design and proposal

Stage 3: Carrying out research
- Carrying out research
- Preparing data for analysis

Your data/evidence



Stage 4: Analysing and interpreting data
- Descriptive and analytical scheme
- Working with numbers
- Tools and programs
- Discussing and concluding

Answers to you research questions

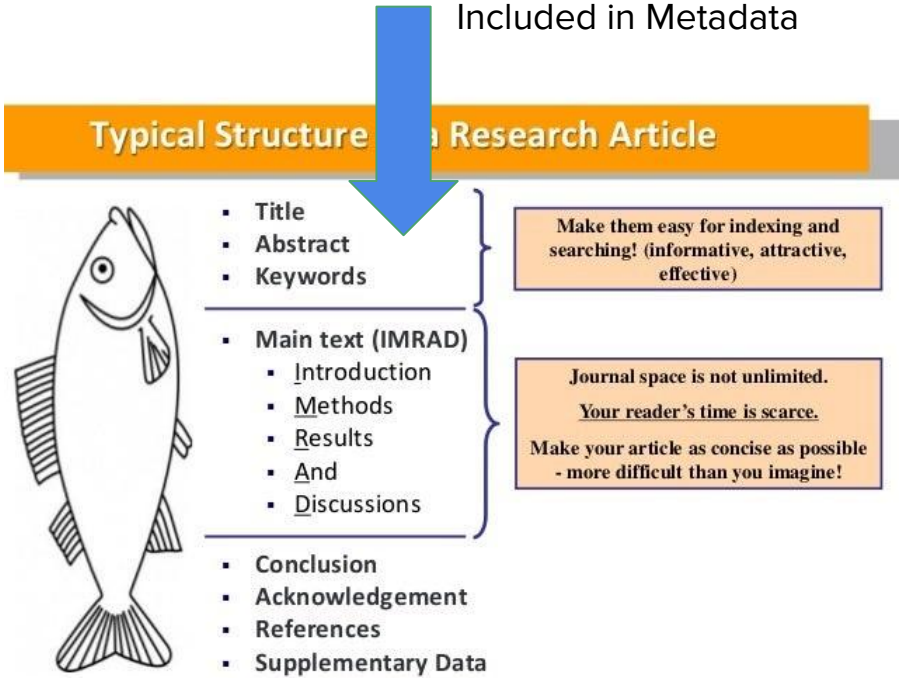
Stage 5: Presenting research
- Written report, thesis or paper.
- Conference presentation

Your written or spoken report

7. Research Article Structure

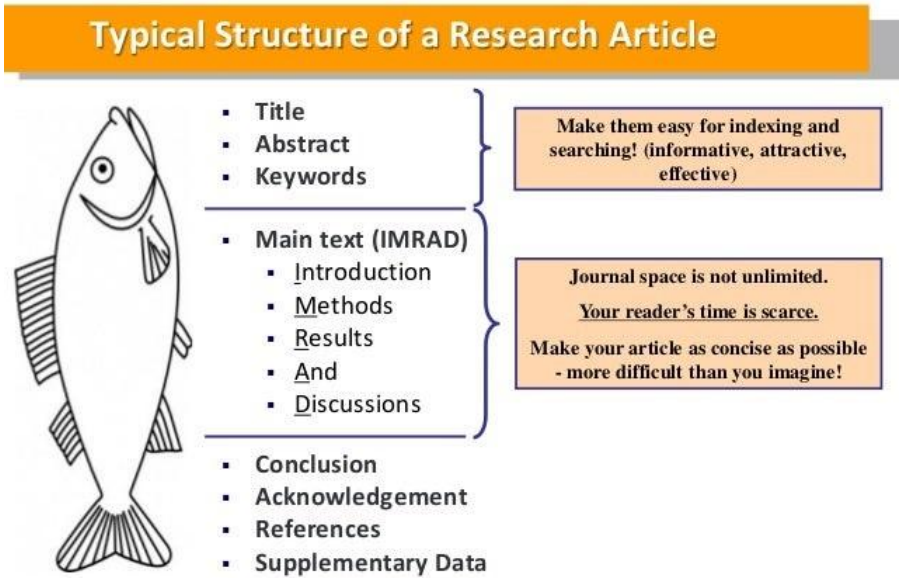
Research article structure is basically an outline of your paper. The components of research structure are illustrated below:

1. Introduction
2. Literature review
3. Methodology
4. Findings
5. Discussions and analysis
6. Conclusions



7. Research Article Structure

1. **Introduction**
2. Literature review
3. Methodology
4. Findings
5. Discussions and analysis
6. Conclusions

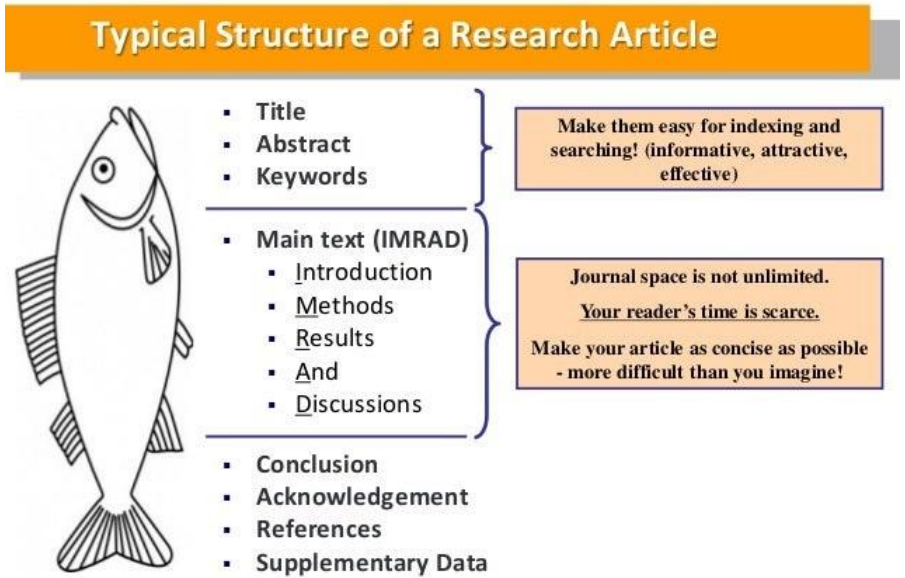


Introduction

1. Introduction of research problem
2. Discussion of research background
3. Research aims and objectives
4. Rationale for the study
5. Research structure

7. Research Article Structure

1. Introduction
2. **Literature review**
3. Methodology
4. Findings
5. Discussions and analysis
6. Conclusions

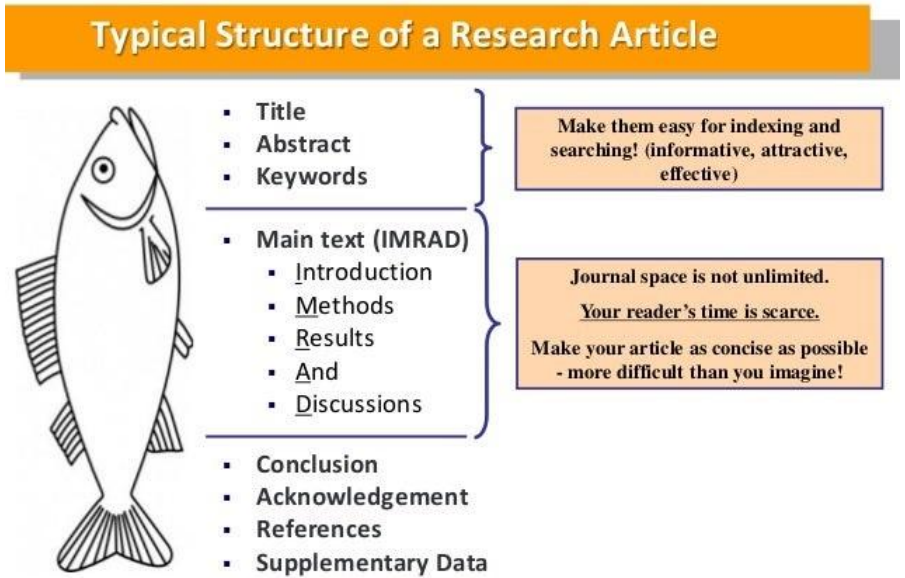


Literature review

1. Definitions of main terms
2. Explanation of secondary data search strategy
3. Critical analysis of major models, theoretical frameworks and thoughts

7. Research Article Structure

1. Introduction
2. Literature review
3. **Methodology**
4. Findings
5. Discussions and analysis
6. Conclusions



Methodology

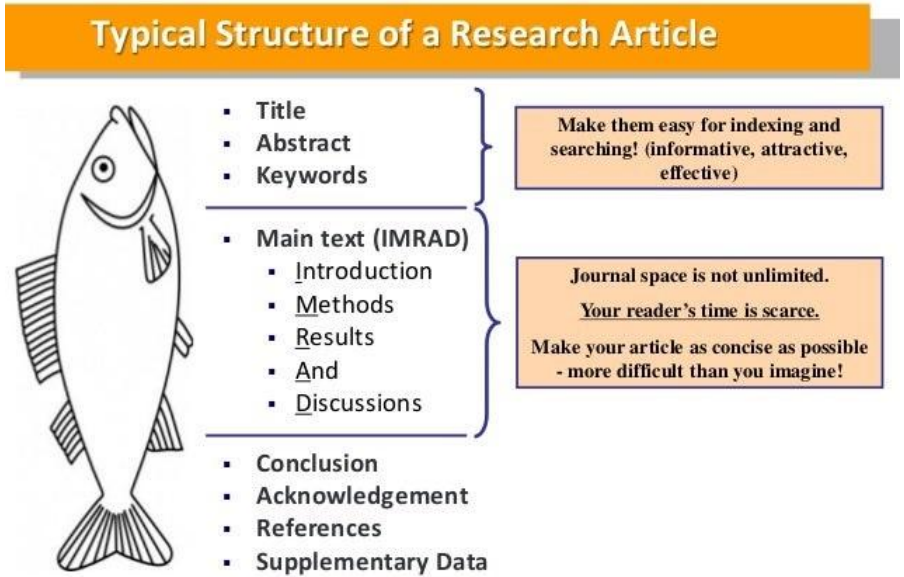
1. Research process
2. Research philosophy
3. Research design
4. Data collection methods and their application
5. Sampling

7. Research Article Structure

1. Introduction
2. Literature review
3. Methodology
4. **Findings**
5. Discussions and analysis
6. Conclusions

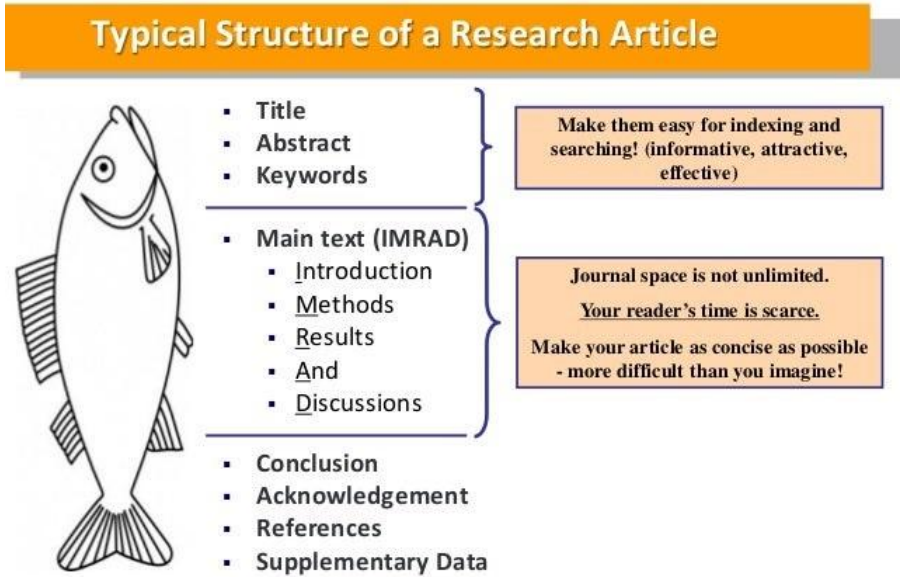
Findings

1. Primary data presentation
2. Brief discussions



7. Research Article Structure

1. Introduction
2. Literature review
3. Methodology
4. Findings
5. **Discussions and analysis**
6. Conclusions

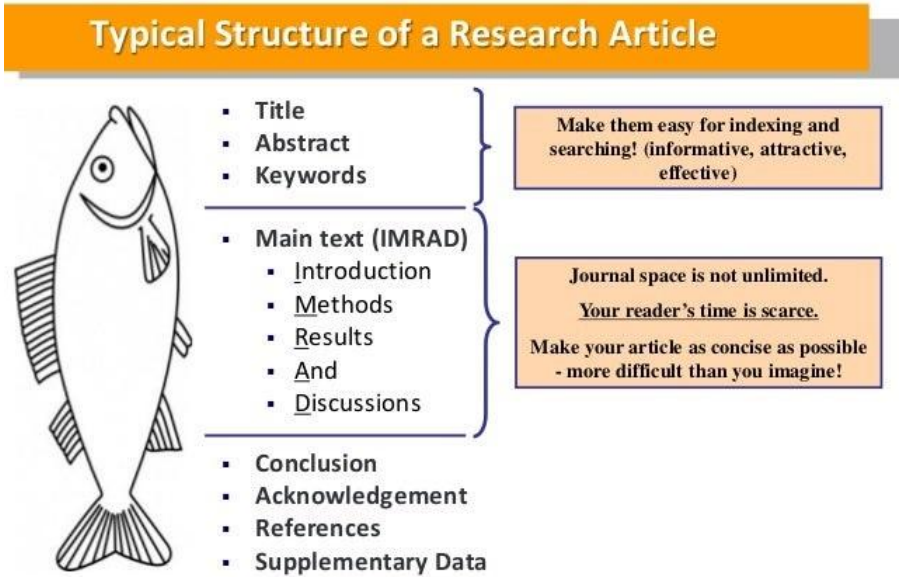


Discussions and analysis

1. In-depth discussions and analysis of primary data
2. Comparisons of primary data to secondary data findings

7. Research Article Structure

1. Introduction
2. Literature review
3. Methodology
4. Findings
5. Discussions and analysis
6. **Conclusions**



Conclusions

1. Discussion of achievement of research aim and objectives
2. Limitations of research
3. Scope for future studies

8. How to Write a Research Paper Title.

Making a good title for a paper involves ensuring that the title of the research accomplishes four goals as mentioned below:

1. It should **predict the content of the research paper**.
2. It should be **interesting to the reader**.
3. It should **reflect the tone of the writing**.
4. It should **contain important keywords** that will make it easier to be located during a keyword search.

8. How to Write a Research Paper Title.

1. Make sure your research title describes (a) the topic, (b) the method, (c) the sample, and (d) the results of your study. As an Example:

   Topic: Mindfulness meditation

   Method: Qualitative

   Sample: German nursing students

   Results: Meditation makes nurses perform better

Title?

8. How to Write a Research Paper Title.

1. Make sure your research title describes (a) the topic, (b) the method, (c) the sample, and (d) the results of your study. You can use the following formula:

[*Result*]: A [*method*] study of [*topic*] among [*sample*]

Example: Meditation makes nurses perform better: a qualitative study of mindfulness meditation among German nursing students

8. How to Write a Research Paper Title.

2. Avoid unnecessary words and jargons. Keep the title statement as concise as possible. You want a title that will be comprehensible even to people who are not experts in your field.
3. Make sure your title is between 5 and 15 words in length.
4. If you are writing a title for a university assignment or for a particular academic journal, verify that your title conforms to the standards and requirements for that outlet. For example, many journals require that titles fall under a character limit, including spaces. Many universities require that titles take a very specific form, limiting your creativity.
5. Use a descriptive phrase to convey the purpose of your research efficiently.
6. Most importantly, use critical keywords in the title to increase the discoverability of your article.

9. How to Write a Research Abstract.

Research abstracts are used throughout the research community to provide a concise description about a research project.

It is typically a short summary of your completed research. If done well, it makes the reader want to learn more about your research.

Some students present their research findings at local and national conferences. Research abstracts are usually requested as part of the application process for conference presenters.

4 pages

9. How to Write a Research Abstract.

These are the basic components of an abstract in any discipline:

- Motivation/problem statement: Why do we care about the problem? What practical, scientific, theoretical or artistic gap is your research filling?
- Methods/procedure/approach: What did you actually do to get your results? (e.g. analyzed 3 novels, completed a series of 5 oil paintings, interviewed 17 students)
- Results/findings/product: As a result of completing the above procedure, what did you learn/invent/create?
- Conclusion/implications: What are the larger implications of your findings, especially for the problem/gap identified in step 1?

However, it's important to note that the weight accorded to the different components can vary by discipline.

9. How to Write a Research Abstract.

Don’ts

1. Do not commence with "this paper…”, "this report…" or similar. It is better to write about the research than about the paper.
2. Do not explain the sections or parts of the paper.
3. Avoid sentences that end in "…is described", "…is reported", "…is analyzed" or similar.
4. Do not begin sentences with "it is suggested that…” "it is believed that…", "it is felt that…"or similar. In every case, the four words can be omitted without damaging the essential message.
5. Do not repeat or rephrase the title. Do not refer in the abstract to information that is not in the document.
6. If possible, avoid trade names, acronyms, abbreviations, or symbols. You would need to explain them, and that takes too much room.
7. The abstract should be about the research, not about the act of writing.

9. How to Write a Research Abstract.

Using the Present Tense and Past Tense When Writing an Abstract

In general, when writing an abstract, you should use the simple present tense when stating facts and explaining the implications of your results. Use the simple past tense when describing your methodology and specific findings from your study. Either of these two tenses can be used when writing about the purpose of your study. Finally, you can use the present perfect tense or the present perfect progressive tense when explaining the background or rationale of your study.

10. Abstract  Conclusion

	Abstract	Conclusion
Aim:	Allow people to decide whether to read the paper or not. Indexation in databases.	Remind the reader of the strength of stated arguments. Promote further research on a topic.
Question answered:	What?	What next?
Citation of other scientific work:	No.	Yes.
Type of language:	Direct, impactful	Direct, impactful
Summarization level:	Very high	High
Length:	Short	Short

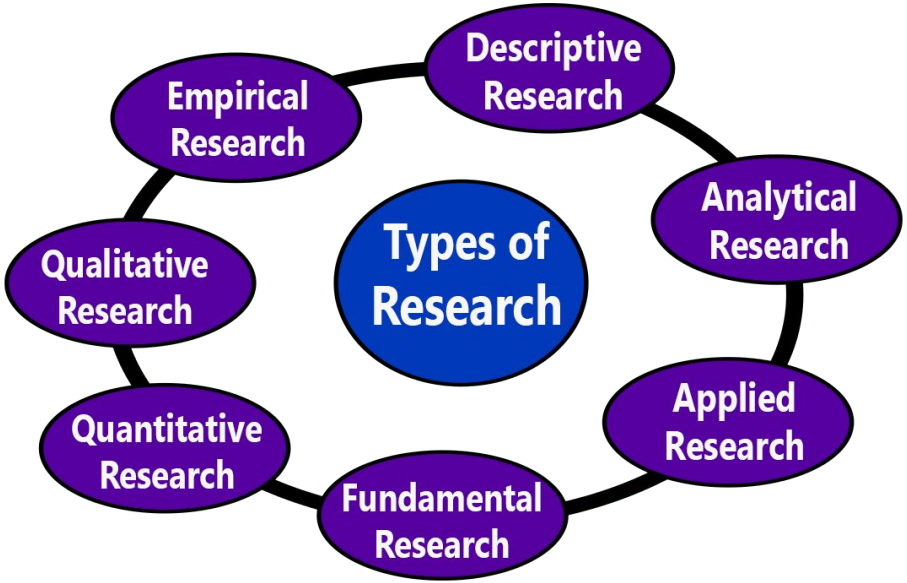
11. Types of Research Data

The next thing to consider is what type of data you will collect. Each kind of data is associated with a range of specific research methods and procedures.

Type of research	**What's the difference?**
Primary vs Secondary	Primary data is collected directly by the researcher (e.g. through interviews or experiments), while secondary data has already been collected by someone else (e.g. in government surveys or scientific publications).
Qualitative vs Quantitative	Qualitative research methods focus on words and meanings, while quantitative research methods focus on numbers and statistics.
Descriptive vs Experimental	Descriptive research gathers data without controlling any variables, while experimental research manipulates and controls variables to determine cause and effect.

12. Types of Research

1. Descriptive vs. Analytical.
2. Applied vs. Fundamental.
3. Quantitative vs. Qualitative.
4. Conceptual vs. Empirical.



12. Types of Research

1. Descriptive vs. Analytical.

Descriptive research asks "what?" It describes something. Meanwhile, **analytical research** asks "why?" We try to find out how something came to be.

Descriptive	**Analytical**
How many disabled people face social isolation? What is the unemployment rate for disabled people? How many siblings of people with Down syndrome have positive experiences?	What causes social isolation in disabled people? Why do disabled people have a harder time finding work? Why do so many siblings of people with Down syndrome have positive experiences?

12. Types of Research

2. Applied vs. Fundamental (Basic) Research

Parameter Of Comparison	Basic (Fundamental) Research	Applied Research
Definition	Basic research can be explained as research that aims to expand the already existing scientific knowledge base. Thus, basic research is knowledge-specific.	Applied research is designed to answer specific questions aimed at solving practical problems. Thus, applied research is solution-driven.
Nature	Theoretical and Exploratory in nature	Practical and Descriptive in nature.
Aim	The primary aim of basic research is to extend the prevailing source of evidence about different sources and objectives.	The central aim of advanced research is to develop new techniques and technologies for solving various industrial problems.
Focus	The primary concern of basic research is to develop scientific knowledge and predictions.	Applied research stresses the development of technology and technique with the help of basic science.
Efficacy	The basic utility of efficacy of basic research is universal. It has a global purpose to solve.	The basic utility of efficacy of advanced research is limited and has a practical purpose of solving.

12. Types of Research

Parameter of Comparison	Basic Research	Applied Research
Objective	The fundamental goal of basic research is to add some knowledge to the already existing one.	On the contrary, applied research is directed towards finding a solution to the problem under consideration.
Relation With Technology	Less associated with technology	Creates solutions or preventions from future problems.
Scope	Wider Scope	More Specific Scope
Specification	Curiosity-driven	Client driven
Commercial Purpose	Does not have direct commercial objectives	Has direct commercial objectives
Relationship With Economy	Less connected with economy	Highly connected with economic pursuits
Publications Appearance	Less often appear in academic publications.	More often appear in academic publications.
Environment	Takes place in a sterile environment.	Occurs in real-world settings.

12. Types of Research

3.1 Qualitative Research Methods

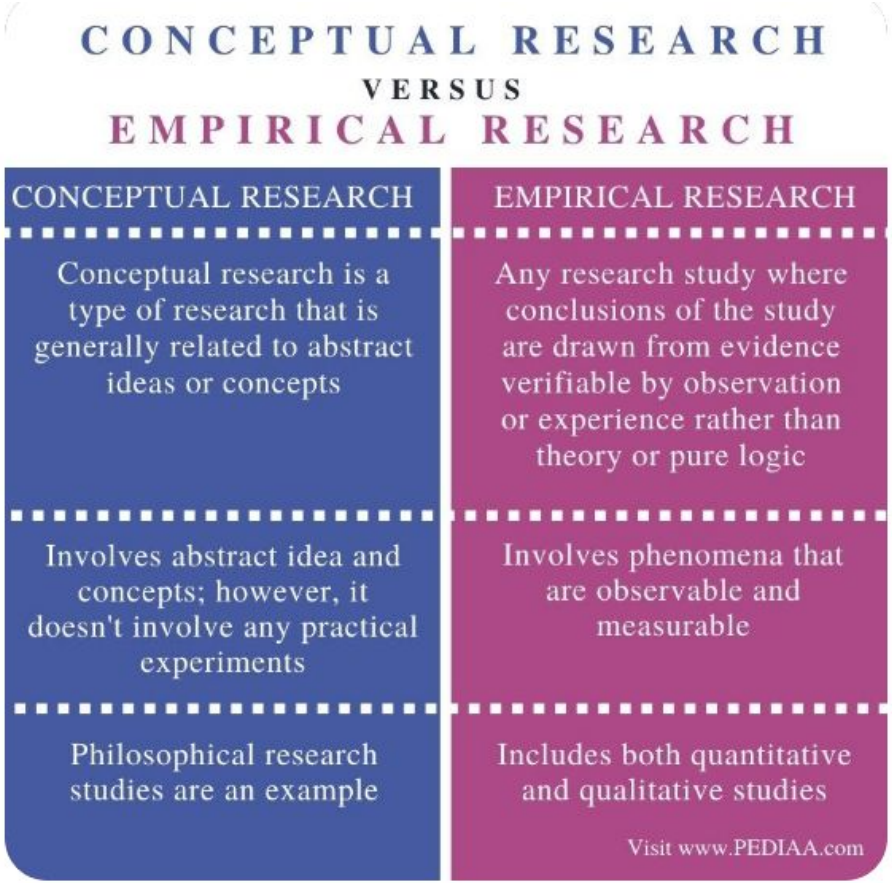
- Case Studies: Researchers conduct in-depth investigations into an individual, group, event, or community, typically gathering data through observation and interviews.
- Focus Groups: A moderator (or researcher) guides conversation around a specific topic among a group of participants.
- Ethnography: Researchers interact with and observe a specific societal or ethnic group in their real-life environment.
- Interviews: Researchers ask participants questions to learn about their perspectives on a particular subject.

12. Types of Research

3.2 Quantitative Research Methods

- Questionnaires and Surveys: Participants receive a list of questions, either closed-ended or multiple choice, which are directed around a particular topic.
- Experiments: Researchers control and test variables to demonstrate cause-and-effect relationships.
- Observations: Researchers look at quantifiable patterns and behavior.
- Structured Interviews: Using a predetermined

12. Types of Research



13. Types of Academic Papers

there are many types of academic papers and journal articles. Let's get to them.

In this guide:

1. Case Studies or Case Report
2. Methods or Methodologies
3. Opinion Article
4. Original Research
5. Review Articles
6. Short Reports or Letters
7. Conclusion

14. Tense Tendencies in Academic Texts

Different sections of academic papers (theses, dissertations and essays) tend to use different tenses. The following is a breakdown of these tendencies by section. Please note that while it is useful to keep these tendencies in mind, there may be exceptions. The breakdown below should help guide your writing, but keep in mind that you may have to shift tenses in any given section, depending on your topic matter.

1. Abstract or Summary
2. Introduction
3. Theoretical Framework
4. Literature Review
5. Methods and Results
6. Conclusions or Discussion
7. Limitations
8. Recommendations and Implications

14. Tense Tendencies in Academic Texts

Abstract or Summary

Present simple: for facts and general truisms; to say what the paper does

This thesis examines the ways that ecological poetry relates to political activism.

Our research suggests better economic policies.

Present perfect: for past events or research still relevant to the present

Thinkers have examined how ecological poetry relates to political activism.

Other economists have suggested different economic policies.

14. Tense Tendencies in Academic Texts

Introduction

Present simple: to say what the paper does and why it is important

This research is relevant to how we understand the role of poetry.

Effective economic policies help societies to prosper.

Past simple: to provide historical background

In his time, Thoreau concerned himself with living in harmony with nature.

Ronald Reagan's policies changed America's political landscape.

14. Tense Tendencies in Academic Texts

Theoretical Framework

Present simple: to describe theories and provide definitions

In lyric poetry, the speaker presents his perspective on a given situation.

"Reaganomics" refers to the economic policies of Reagan administration.

Literature Review

Present perfect: for past research still relevant to the paper's current research

Research has shown that the AI market for education will grow to $1.2 billion in 2024.

Past simple: to describe specific steps or actions of past researchers

Tan et al. investigated whether an algorithm could predict student engagement.

14. Tense Tendencies in Academic Texts

Methods and Results

Past simple: for events that began and ended in the past, such as an experiment

We conducted semi-structured interviews with the participants.

We found that participants had much to say about their workplaces.

A multivariate linear regression was used.

Present simple: to describe a tool's function (which does not change over time)

Multivariate linear regressions are relevant to use for sets of correlated random variables.

14. Tense Tendencies in Academic Texts

Conclusions or Discussion

Present simple: for interpretations of data

The results indicate a steady increase in net gain for *x* and *y* companies.

We cannot conclude that this growth will continue on the basis of this study.

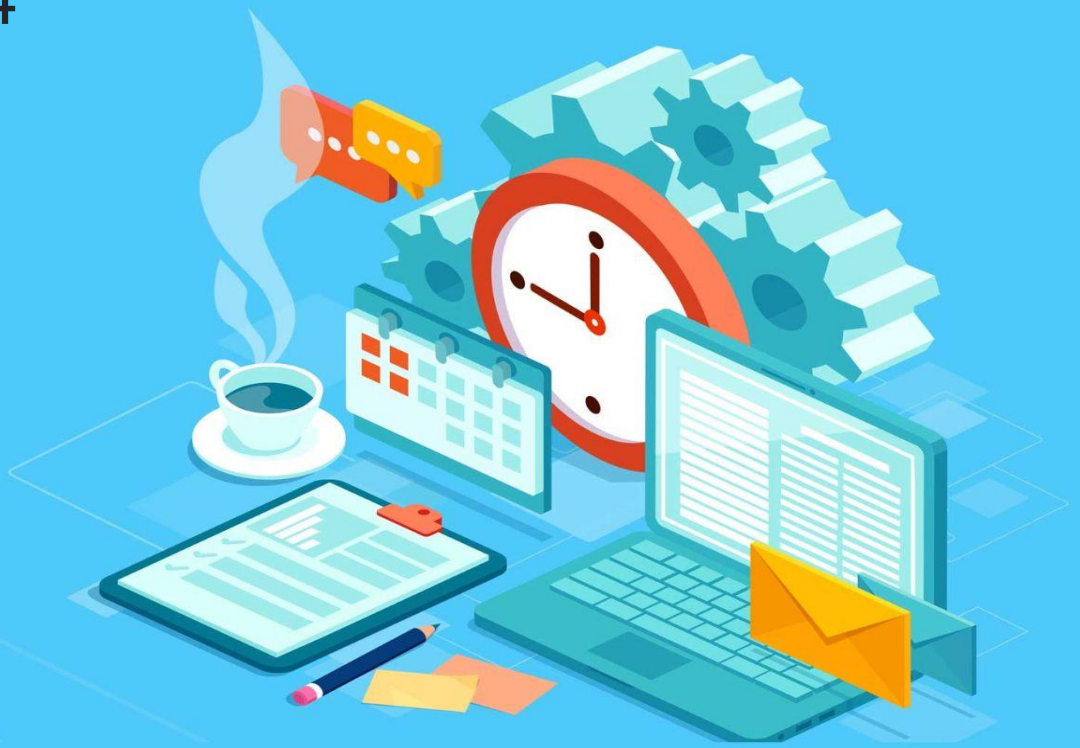
Research Methodology

Academic Referencing and Citation

Prof. Salah I. Yahya

Schedule of Session #4

- Introduction
- Why Do We Cite and Reference?
- Referencing Styles
- What is Plagiarism?
- Achieving Good Academic Practice
- Working with Text-based Sources
- Tips for Using Source Materials
- What is the DOI



1. Introduction

Academic writing relies on more than just the ideas and experience of one author. It also uses the ideas and research of other sources: books, journal articles, websites, and so forth. These other sources may be used to support the author's ideas, or the author may be discussing, analysing, or critiquing other sources.

2. Why Do We Cite and Reference?

When writing any academic essay, paper, report or assignment, you need to highlight your use of other authors' ideas and words so that you:

1. Give the original author credit for their own ideas and work
2. Validate your arguments
3. Enable the reader to follow up on the original work if they wish to
4. Enable the reader to see how dated the information might be
5. Prove to your thesis examiner that you have read around the subject
6. Avoid plagiarism

3. Referencing Styles

There are many different styles of referencing, including:

1. The Harvard System (often called the 'Author Date System'),
2. Chicago System
3. Modern Language Association of America (MLA)
4. American Psychological Association (APA)
5. Vancouver and
6. IEEE Systems

However, your university may prefer the use of a different system so check with your lecturer or in your course information as to which referencing style to use.

4. What is Plagiarism?

1. Presenting another's ideas as if they are your own – either directly or indirectly
2. Copying or pasting text and images without saying where they came from
3. Not showing when a quote is a quote
4. Summarising information without showing the original source
5. Changing a few words in a section of text without acknowledging the original author

4. What is Plagiarism?

Material which you must acknowledge includes but is not limited to:

1. exact words (written or spoken) *Note that exact words must be placed in quotation marks or indented depending on the referencing style you use.
2. summarised or paraphrased text
3. data
4. images (graph, tables, video, multimedia etc)
5. pictures or illustrations
6. ideas or concepts
7. theories
8. opinion or analysis
9. music or other performance media
10. computer code
11. designs, drawings or plans

5. Achieving Good Academic Practice

Good academic practice refers to the process of completing your academic work **independently**, **honestly** and in an **appropriate academic style**, using good referencing and acknowledging all of your sources. Achieving good academic practices involves:

1. developing your own independent evaluation of academic issues 2. drawing upon research from academics in your field of study 3. discussing and evaluating existing concepts and theories 4. demonstrating your understanding of the key literature 5. developing your own arguments.	.1 تطوير تقييمك المستقل للقضايا الأكاديمية .2 بالاعتماد على أبحاث من الأكاديميين في مجال دراستك .3 مناقشة وتقييم المفاهيم والنظريات الموجودة .4 إظهار فهمك للأدبيات الرئيسية .5 تطوير الحجج الخاصة بك.

5. Achieving Good Academic Practice

Good academic practice means developing:

الممارسة الأكاديمية الجيدة تعني تطوير:

1. study skills (eg reading, note-taking, research etc) 2. critical enquiry and evaluation (eg balanced opinion, reasoning and argument) 3. appropriate academic writing (eg essays, reports, dissertations etc) 4. referencing skills (eg when and how to reference) 5. exam techniques (eg preparation, timing, etc). 6. Achieving good academic practice is not as complicated as it may appear.	1. مهارات الدراسة (مثل القراءة وتدوين الملاحظات والبحث وما إلى ذلك) 2. الاستفسار النقدي والتقييم (مثل الرأي المتوازن والاستدلال والحجة) 3. الكتابة الأكاديمية المناسبة (مثل المقالات والتقارير والأطروحات وما إلى ذلك) 4. مهارات الإحالة (على سبيل المثال ، متى وكيف يتم الرجوع إليها) 5. تقنيات الامتحان (مثل الإعداد والتوقيت وما إلى ذلك). 6. إن تحقيق الممارسة الأكاديمية الجيدة ليس معقدًا كما قد يبدو.

6. Working with Text-based Sources

Using sources correctly is a key to good academic writing. When you have come across a section in your reading that you would like to use in your assignment, there are three different ways to use source material: quoting, summarising and paraphrasing.

Regardless of the referencing style you use, there are three ways that you can integrate source material in the body of your essay (in-text citations):

1. quote directly - use the exact words copied from a source.
    - Use these sparingly. It is bad practice to copy chunks of text even if you reference it.
    - Find out how to place a quotation in the body of your assignment. It may need to be placed in inverted commas ("quotation marks") or indented on a new line depending on the referencing style.
2. paraphrase - you restate material from your source in your own words without summarising. This is done by changing the grammar, word order and/or main words used.
3. summarise - you provide the main idea or argument from your source in your own words and in a significantly shorter way than the original text.

6. Working with Text-based Sources

Quoting

Cottrell has written a very useful guide to studying at university level and has included a great deal of material on developing independent study skills since, as she points out, a university student should foster his or her own "development as an autonomous learner" (2008, p.61).

The quotation is in quotation marks ("...") at the end of the sentence: the citation is clear as it has been placed directly after the quotation. In this sentence the author (Cottrell) has been separated from the date; it could have been written 'Cottrell (2008, p.61) has written...'. Note the reference can be placed anywhere in the sentence as long as it clearly shows the separation between your own words and the words taken from the source.
Note how the quotation uses the exact words copied from the original and how these words have been matched to the overall grammar of the sentence.

6. Working with Text-based Sources

How do I use quotations?

A quote is the word for word repetition of the original text. When to quote? Not very often! You may wish to use a quotation to reinforce an idea in your assignment or because you intend to critique the ideas expressed in the quotation. Most importantly, do not fill your assignment with long quotes. This is very tiring to read and above all, pointless. The tutor wants to know what YOU think. However, seek guidance from your tutor because requirements in this area vary across disciplines.

Generally, quoted sources need to be either shown in quotation marks or indented depending on whether the quote is long or short. What is considered a long quote or a short quote and exactly how to present these depends on your particular referencing style. For information on particular referencing styles,

6. Working with Text-based Sources

Paraphrasing

Cottrell has written a very useful guide to studying at university level and she explains that university students are independent learners who need to develop the ability to judge their own work separately and in addition to the feedback they receive from lecturers (2008 p.61). She adds that developing reflective skills, i.e. being able to review one's own work critically, is important for successful university study (2008, p.61).

The paraphrase is quite long compared with the quotation and summary. This is because a paraphrase restates everything included in the original text.

The paraphrase extends over two sentences, each requiring a citation.

Cottrell's words have been introduced by 'she explains that...' and 'she adds that ...' . In this example, the citations are placed after the paraphrase but they can be placed anywhere in the sentence as long as it is clear that you are restating the ideas of the original author.

6. Working with Text-based Sources

Paraphrasing a source

Paraphrasing means presenting the original source in your own words without necessarily being any shorter than the original. This does not need to be placed in quotation marks but it must be fully referenced.

When should I paraphrase?

To avoid a direct quote (i.e. to improve the flow of your writing), or when the original idea is more important than the exact wording (i.e. the author's style is boring, awkward or too difficult).

6. Working with Text-based Sources

How I do paraphrase?

1. Read the text, put it down and imagine you'd be telling a friend about it (in your own words but not too casual!). This way you can test your understanding of the ideas.
2. Read the text, pick out the key points and use those to write a new text (without looking at the original). Leave at least a day before you write your new text, otherwise you may accidentally just rewrite the original text resulting in plagiarism.
3. Change the vocabulary (phrases and words) by looking words up in a thesaurus or dictionary to find synonyms. Do not try to find synonyms for ‘shared language' (i.e. conventional language, technical terms or names). Do not put technical terms or shared language into quotation marks, e.g. Marx's class struggle does not become a ‘rank fight'. You can change vocabulary by:
    - changing adverbs into adjectives and vice versa
    - changing nouns into verbs and vice versa - e.g. procedure >> proceed
    - using different constructions to express time/place
    - Change sentence structure by turning active sentences into passive ones and vice versa.

5. Working with text-based sources

Summarising

Cottrell has written a very useful guide to studying at university level and has included a great deal of material on developing independent study skills since, as she points out, university students progress best when they can direct their own learning (2008, p.61).

1. The summary is the last 11 words in the sentence, the first half of the sentence was not written by Cottrell. The citation at the end clearly relates to the summary as it is introduced by 'as she points out' and followed by the citation placed at the end.
2. The citation can be placed anywhere in the sentence as long it is clear that you are restating the ideas of the original author.

When should I use a summary of a source?

A summary, when used in the context of referencing sources, means that you are writing a shorter version of the original work, generally to give background information in a shorter form than in the original work

Quotation	Cottrell has written a very useful guide to studying at university level and has included a great deal of material on developing independent study skills since, as she points out, a university student should foster his or her own "development as an autonomous learner" (2008, p.61).
Paraphrasing	Cottrell has written a very useful guide to studying at university level and she explains that university students are independent learners who need to develop the ability to judge their own work separately and in addition to the feedback they receive from lecturers (2008 p.61). She adds that developing reflective skills, i.e. being able to review one's own work critically, is important for successful university study (2008, p.61).
Summarizing	Cottrell has written a very useful guide to studying at university level and has included a great deal of material on developing independent study skills since, as she points out, university students progress best when they can direct their own learning (2008, p.61).

كتب كوتريل دلي لاً مفيدًا للغاية للدراسة على المستوى الجامعي ، وقد تضمن قدرًا كبيرًا من المواد حول تطوير مهارات الدراسة المستقلة ، حيث أنه ، كما أوضحت ، يجب على الطالب	**اقتباس**
كتبت كوتريل دلي لاً مفيدًا للغاية للدراسة على المستوى الجامعي وأوضحت أن طلاب الجامعة هم متعلمون مستقلون يحتاجون إلى تطوير القدرة على الحكم على عملهم بشكل منفصل بالإ الدراسة الجامعية (2008 ، ص 61).	**إعادة صياغة النص**
كتبت كوتريل دلي لاً مفيدًا للغاية للدراسة على المستوى الجامعي، وقد تضمن قدرًا كبيرًا من المواد حول تطوير مهارات الدراسة المستقلة، حيث تشير، إلى أن طلاب الجامعات يتقدمون بش	**تلخيص**

7. Tips for Using Source Materials

- Place your in-text citation so that it is clear what material or idea has been taken from a source and what you have written from your own conclusions.
- Make sure that the grammar flows naturally across material that you have written and material you have included from another source.
- Make any quotation used as short as possible.
- Do not copy chunks of text.
- Use your own words as much as possible.
- This means summarising or paraphrasing the original source (with a reference of course).
- Reference any material you use which you have taken from a source including ideas, arguments, images, diagrams, plans, music, code etc. For more information on what material must be referenced.

8. What is the DOI

A DOI (Digital Object Identifier) is a unique and never-changing string assigned to online (journal) articles, books, and other works. DOIs make it easier to retrieve works, which is why citation styles, like APA and MLA Style, recommend including them in citations. CrossRef is the major DOI registration agency.

You may find DOIs formatted in various ways:

ARO DOI: 10.14500/2307-549X

10.14500 Prefix given by the crossref.

2307-549X suffix set by the publisher

DOI link:
https://dx.doi.org/10.14500/2307-549X

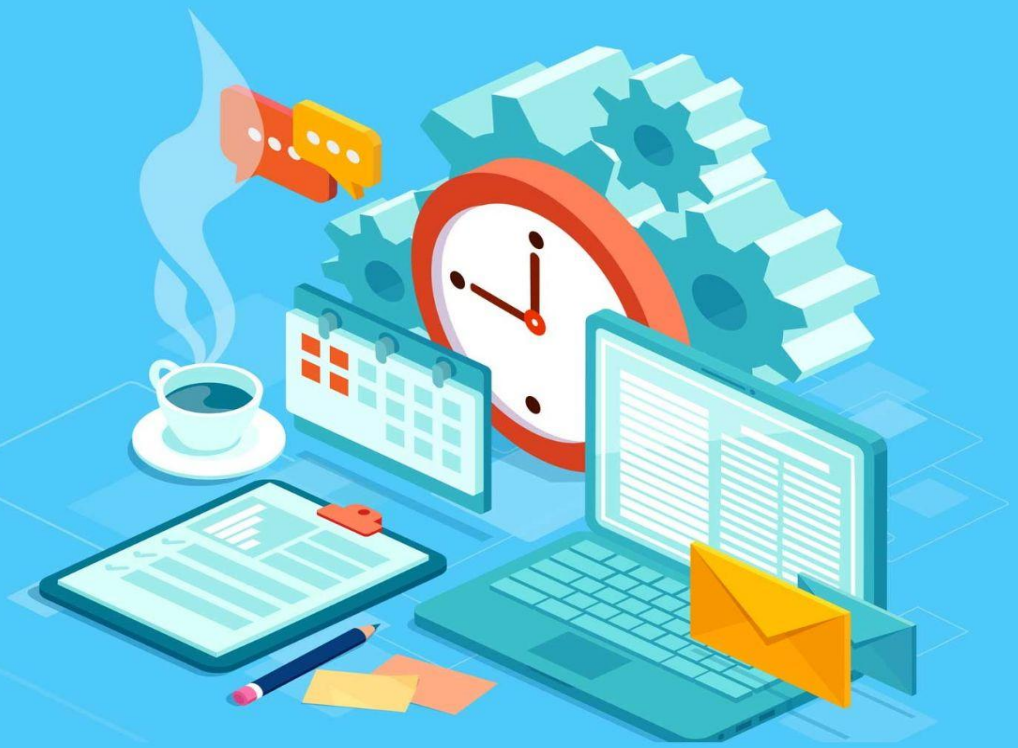
Research Methodology

Indexing Bodies

Prof. Salah I. Yahya

Schedule of Session #5

- Journal Indexing
- Clarivate Analytics and Web of Science
- WoS - JIF
- SCOPUS
- SCImago Journal & Country Rank
- JIF Quartile
- DOAJ - Directory of Open Access Journals



Journal Indexing

1. Web of Science
2. SCOPUS
3. DOAJ

Clarivate Analytics and Web of Science

Scientometrics is the field of study which concerns itself with measuring and analysing scholarly literature

1

The Institute for Scientific Information (ISI) was an academic publishing service, founded by *Eugene Garfield* in Philadelphia in 1956. ISI offered scientometric and bibliographic database services. Its specialty was citation indexing and analysis, a field pioneered by Garfield.

Initially, the company was named Documation. In 1992, ISI was acquired by Thomson Scientific & Healthcare, and became known as Thomson ISI. It was a part of the Intellectual Property & Science business of Thomson Reuters until 2016, when the IP & Science business was sold, becoming Clarivate Analytics. In February 2018, Clarivate announced it will re-establish ISI as part of its Scientific and Academic Research group. It exists as a group within Clarivate as of November 2018.

2

3

4

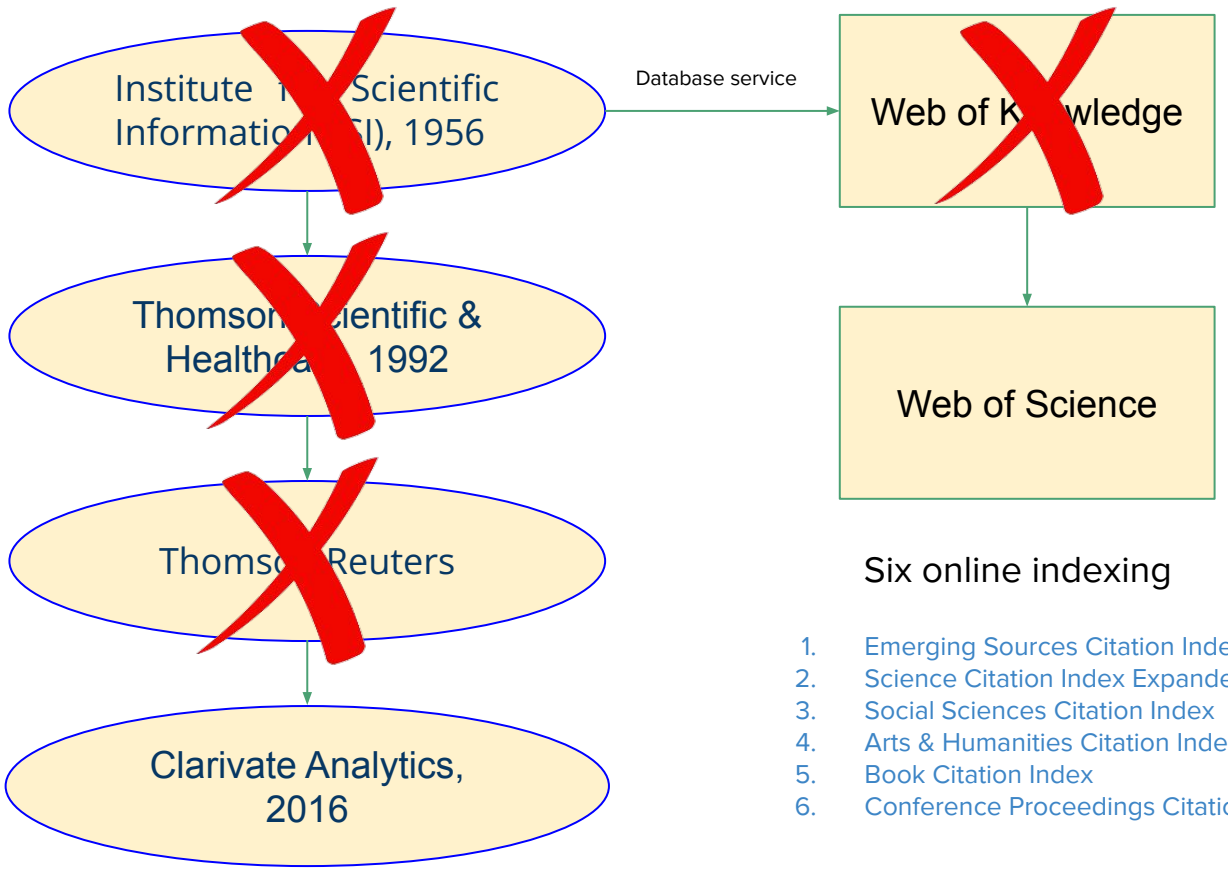
5

Clarivate Analytics and Web of Science

ISI maintained citation databases covering thousands of academic journals, including a continuation of its longtime print-based indexing service the Science Citation Index (SCI), as well as the Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index (AHCI). All of these were available via ISI's Web of Knowledge database service.

This database allows a researcher to identify which articles have been cited most frequently, and who has cited them. The ISI also published the annual Journal Citation Reports (JCR) which list an impact factor for each of the journals that it tracked. Within the scientific community, journal impact factors continue to play a large but controversial role in determining the kudos attached to a scientist's published research record.

Clarivate Analytics and Web of Science



Six online indexing

1. Emerging Sources Citation Index
2. Science Citation Index Expanded
3. Social Sciences Citation Index
4. Arts & Humanities Citation Index
5. Book Citation Index
6. Conference Proceedings Citation Index

Other Services

1. H-Index
2. Journal Citation Report (JCR)
3. Researcher ID

WoS - JIF

Journal impact factor of 2017 is announced July 2018 JIF numerator

in the calendar
tation date from

How is J

types included
es:

JIF

those excluded
ept citations to

JCR covers

20,994 journals

Why two years?
It takes time for articles to be cited, and these rates vary by field. Articles typically begin to reach a citation peak after two years in many fields. Some fields have a slower velocity and reach their peak over longer periods of time. The Five-year Journal Impact Factor may be a better choice in those categories.

SCOPUS

Scopus is Elsevier's abstract and citation database launched in 2004. Scopus covers nearly 36,377 titles (22,79 tive titles and 13,583 inactive titles) from approximately 11,678 publishers, of which in top-level subject fields: life sciences, social sciences, physical overs three types of sources: book series, journals, and trade journals. All journals covered in the Scopus database ar sufficiently high quality each year according to four types of numerical quality measur h-Index, CiteScore, SJR (SCImago Journal Rank) and SNIP (Source Normalized ber). Searches in Scopus also incorporate searches of patent databases.

Is a Netherlands-based publishing company specializing in scientific, technical, and medical content. It is a part of the RELX Group, known until 2015 as Reed Elsevier

The h-index is an author-level metric that measures both the productivity and citation impact of the publications

SCOPUS

What is CiteScore?

CiteScore is another metric for measuring journal impact using data from the Scopus database.The calculation of **CiteScore** for the current year is based on the number of citations received by a journal in that year for the documents published in the journal in the past three years, divided by the documents indexed in Scopus published in those three years.

Example of 2017 CiteScore calculation:

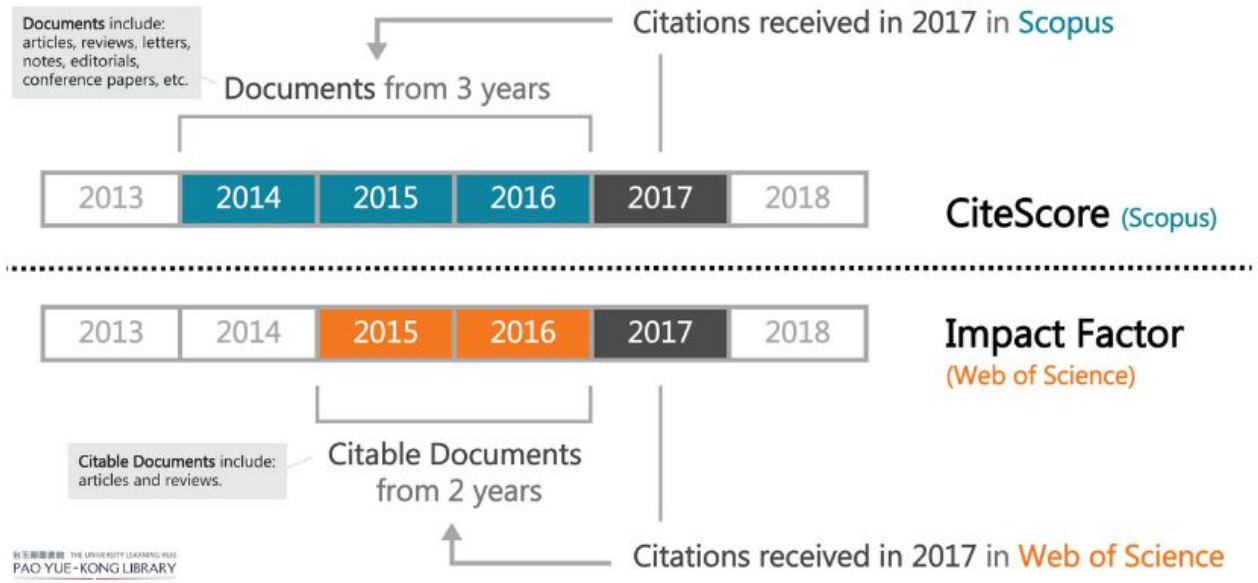
Calculation of CiteScore:

$$\textbf{CiteScore in 2017} = \frac{\#\text{ of citations to } \textbf{all items} \text{ published in 2014-2016}}{\#\text{ of } \textbf{all items} \text{ published in 2014-2016}}$$

Note: CiteScore includes all document types indexed in Scopus, e.g. articles, reviews, letters, notes, editorials and conference papers.

Ref: CiteScore: a new metric to help you choose the right journal for more details.

CiteScore vs Journal Impact Factor



Major differences between CiteScore and Journal Impact Factor:

- CiteScore calculation is based on **Scopus** data, while Impact Factor is based on **Web of Science data**.
- CiteScore uses a **3-year window** while Impact Factor adopts a **2-year window**.
- CiteScore includes all **document types indexed** by Scopus, include articles, reviews, letters, notes, editorials, conference papers, etc. while Impact Factor only includes "**citable documents**" which are articles and reviews.

SCImago Journal & Country Rank

The SCImago Journal & Country Rank is a publicly available portal that includes the journals and country scientific indicators developed from the information contained in the Scopus® database (Elsevier B.V.). These indicators can be used to assess and analyze scientific domains. Journals can be compared or analysed separately. Country rankings may also be compared or analysed separately. Journals can be grouped by subject area (27 major thematic areas), subject category (313 specific subject categories) or by country. Citation data is drawn from over 34,100 titles from more than 5,000 international publishers and country performance metrics from 239 countries worldwide.

JIF Quartile

A journal's quartile ranking is determined by comparing a journal to others in its JCR category based on Impact Factor score. If a journal falls in Q1, it means that the journal performs better than at least 75% of journals in that category, based on its Impact Factor score.

Q1 *Q2* *Q3* *Q4*

DOAJ - Directory of Open Access Journals

DOAJ (Directory of Open Access Journals) was launched in 2003 with 300 open access journals. Today, this independent index contains almost 17 500 peer-reviewed, open access journals covering all areas of science, technology, medicine, social sciences, arts and humanities. Open access journals from all countries and in all languages are accepted for indexing.

DOAJ is financially supported by many libraries, publishers and other like-minded organisations. Supporting DOAJ demonstrates a firm commitment to open access and the infrastructure that supports it.

Thank you