WEEK 2:
RESEARCH PROBLEM FORMULATION AND REFERENCING IN RESEARCH

RESEARCH PROBLEM FORMULATION

Contents of Final Report:

- o   Chapter 1: Introduction

- o   Chapter 2: Literature Review

- o   Chapter 3: Experimental Program/Research Methodology

- o   Chapter 4: Results and Discussion

- o   Chapter 5: Conclusions and Recommendations

Research topic formulation

Report 1: Introduction

Content of Research Topic Formulation

Background/Brief Literature Review

o The background provides a general overview of the research topic supported by a strong literature survey.

o It introduces the main ideas of the research topic and ensures a logical flow.

Content of Research Topic Formulation

Problem Statement

o   A research problem is a question that a researcher wants to answer or a problem that a researcher wants to solve.

o   Problem statement outlines the research question that the research will address throughout the project.

o   Identification of a research problem is the first and important step in research process.

o   This identifies the gap or concern in the existing knowledge that requires further understanding and investigation.

Content of Research Topic Formulation

Novelty/significance of research

- o It is fundamentally considered that every research problem should be new and unique in itself.

- o Therefore, Research Problem is chosen to extend the growth of existing body of knowledge on a profession.

Content of Research Topic Formulation

Scope of the research

- o Scope of the study means all those things that will be covered in the research project.

- o It clearly defines the extent of content of the research to reach the logical conclusions.

Feasibility of a research problem

- o Feasibility is an essential consideration of any research project.

- o It will help the researcher to decide whether selected problem is appropriate or not.

Content of Research Topic Formulation

Scope of the research

o The issues associated with the feasibility of research may be:

- Solvable?

- Time

- Facilities

- Equipment/resources

- Financial

- Ethical consideration

Content of Research Topic Formulation

o   Background/Brief Literature Review

o   Problem Statement

o   Novelty/Significance of the research

o   Scope of the research

MINI ORAL PRESENTATION

Mini Oral Presentation

- o   Should convey exactly the same information as in the Report 1

- o   This would allow the students to share ideas/knowledge among themselves about the expectations of the tentative outcomes.

Mini Oral Presentation

o   Should have maximum 4 – 5 slides.

- One slide for Topic title and personal details

- One slide for Background/brief literature review

- One slide for Problem statement

- One slide for Significance/novelty of the research

- One slide for Scope of the research

Max 5 mins (3 mins presentation + 2 mins for QA) allocated to each student, please stick to it.

REFERENCING IN RESEARCH

What is referencing in research?

o   Academic writing relies on more than just the ideas of the researcher/author.

o   It also uses the ideas and researches of the sources: books, journals, technical reports etc.

o   Referencing is used to tell the reader about the sources from where the ideas have been used in the writings.

o   It is important to reference sources because:

   ➢   It creates a solid argument.

   ➢   It properly credits the originators of ideas, theories or research outcomes.

Failure to properly acknowledge source is called <mark>plagiarism</mark>, and this is a serious academic misconduct.

Why do we need referencing in research?

- o To distinguish author's ideas.

- o To reinforce the argument.

- o To show different perspectives.

- o To ensure the moral rights of the author.

- o To avoid plagiarism.

How to properly referencing in research/Referencing styles?

- o **In-text citations:**

  - ➢ In-text citations contains basic information about the source:

    - ▪ The source's author(s)

    - ▪ The year of publication

How to properly referencing in research/Referencing styles?

- ○ **Reference list:**

    - ➢ The reference list appears at the end of the Report, under the heading 'References'.

    - ➢ It lists detailed information about each resource that has been cited in the text.

    - ➢ The information includes:

        - ▪ List all author names.

        - ▪ Year of publication.

        - ▪ Title of the source.

        - ▪ Journal name, volume, issue and page numbers.

How to properly referencing in research/Referencing styles?

o   APA – American Psychological Association

o   MLA – Modern Language Association

o   Oxford

o   Chicago

o   Harvard

How to properly referencing in research/Referencing styles?

- **Harvard referencing style**

  ➤ Harvard referencing style is also known as 'author-date' style.

- **In-text citations: Harvard**

  ➤ (author date)

    ▪ One author: (Jones 2010)

    ▪ 2 authors: (Jones & Smith 2010)

    ▪ 2+ authors: (Jones et al. 2010)

- **Reference list: Harvard**

  ➤ Order: Author, year, article title, journal title, volume/issue, page range
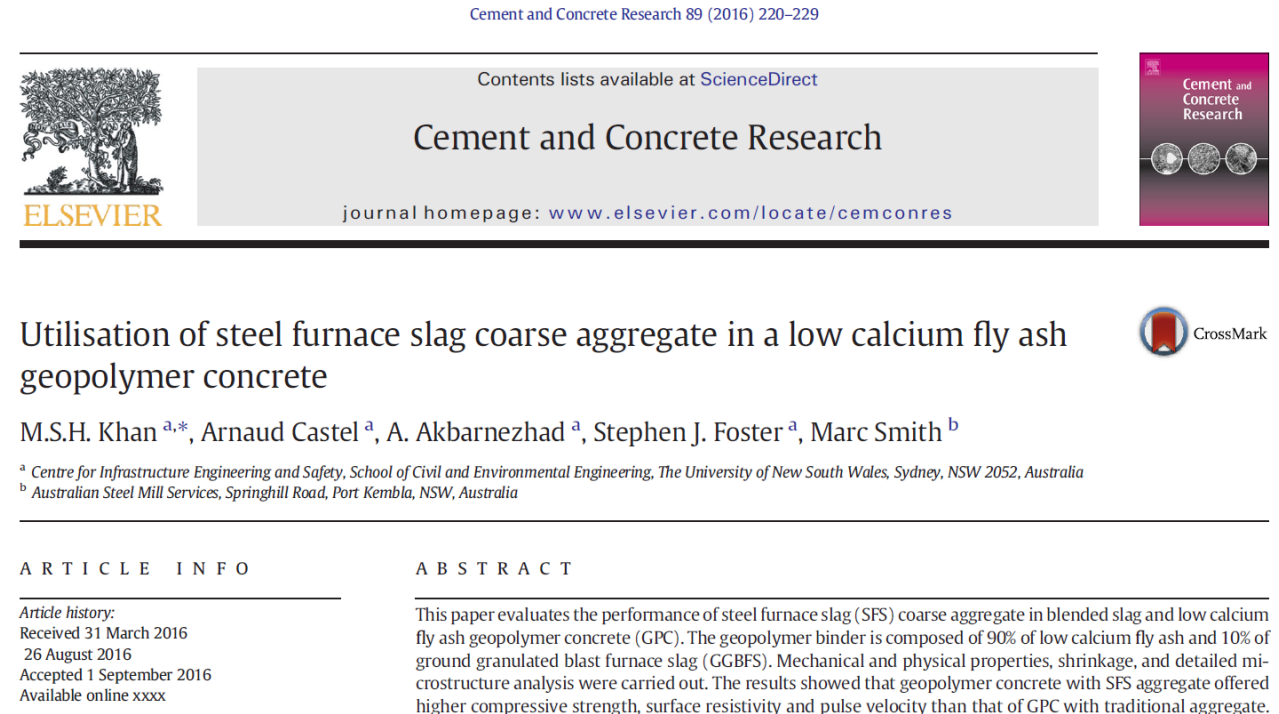
How to properly referencing in research/Referencing styles?

- Harvard referencing style – Example

- In-text citations:
  (Khan et al. 2016)

Utilisation of steel furnace slag coarse aggregate in a low calcium fly ash geopolymer concrete

M.S.H. Khan [a,*], Arnaud Castel [a], A. Akbarnezhad [a], Stephen J. Foster [a], Marc Smith [b]

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[b] Australian Steel Mill Services, Springhill Road, Port Kembla, NSW, Australia

ABSTRACT

This paper evaluates the performance of steel furnace slag (SFS) coarse aggregate in blended slag and low calcium fly ash geopolymer concrete (GPC). The geopolymer binder is composed of 90% of low calcium fly ash and 10% of ground granulated blast furnace slag (GGBFS). Mechanical and physical properties, shrinkage, and detailed microstructure analysis were carried out. The results showed that geopolymer concrete with SFS aggregate offered higher compressive strength, surface resistivity and pulse velocity than that of GPC with traditional aggregate.
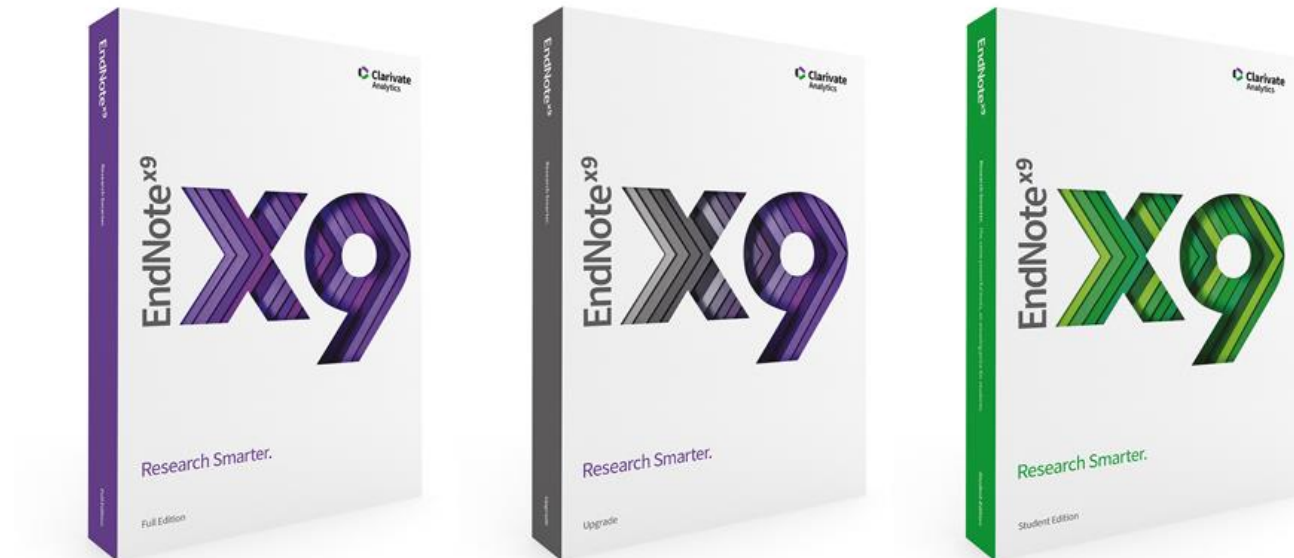
- Reference list:

  ➢ Khan, MSH, Castel, A, Akbernezhad, A, Foster SJ, & Smith, M, (2016). 'Utilisation of steel furnace slag coarse aggregate in a low calcium fly ash geopolymer concrete', *Cement and Concrete Research,* Vol. 89, pp. 220-229.

Referencing software?

o **EndNote**

Any Questions??