HANDOUT #2

EM200 Methods of Research	**Saturday**
Engr. Reynaldo P Ramos, PhD	**CED Building**

1. **What is Abstract?** It is a brief and concise descriptive summary of statement of the problem, hypotheses, significance of the study, research design, determination of sample size, sampling design and technique, the research instrument and validation, data processing and method, statistical analysis, findings, conclusions and recommendations.
   Forms of Abstract:
   a. Short Form – it consists of 100-250 words and normally used for publication of research paper in a journal.
   b. Extended Form – it consists of 500 – 900 and being used in research paper contest; and presentation of scientific papers during symposium, seminars and conference.
   c. Long Form – it consists of 900-1000 words and being used in master's thesis and PhD dissertation

2. **Characteristics of a Research Problem/Research Objectives**
   S-pecific: the problem should be specifically stated
   M-easurable: it is easy by using research instruments, apparatus, or equipment
   A-chievable: can be achieved using correct statistical tools to arrive at precise results
   R-ealistic: real results are attained because they are gathered scientifically and not manipulated or maneuvered
   T-time-bound: time frame is required in every activity because the shorter completion of the activity, the better.
   In addition, a good research problem should be: (a) interesting, (b) innovative, (c) cost-effective, (d) relevant to the needs and problems of the people, (e) relevant to government thrusts, (f) measurable and time-bound.
   Research Objective is defined as statement of purpose for which the investigation is to be conducted. It is a guide to be accomplished by the researcher in conducting a study. It has the same characteristics, SMART with research problem.

3. **Components of the Research Process**
   (a) Selecting a research topic and research proposal writing, (b) Reviewing of literature, (c) Deciding on the research approach and technique to data collection, (d) Designing formal for primary and secondary data collection, (e) Data measurement and coding, (f) Analysis of the results, (g) Structuring and writing the research.
   (b) According to *Paler-Calmorin & Calmorin (2007)*, the research process consists of the ff: (1) problem/objectives, (2) hypotheses, (3) theoretical/conceptual framework, (4) assumptions, (5) review of related literature, (6) research design, (7) data collection, (8) data processing and statistical treatment, (9) analysis and interpretation, (10) summary, conclusions and recommendations

4. **Literature Review**
   A literature is an independent works or brief introduction to the reports of new primary data with different focuses, goals, perspectives, strategies, organization and audiences. It can also focus on research outcomes, research methods, theories and applications. It provides background to and context for the research and to establish a bridge between the research study and the existing body of knowledge on the research topic. It is a process in which the researcher "critically" reviews available literature directly or indirectly related to the conduct of the research. There are three main reasons why a literature is necessary: (a) determining what research has been done on the research topic, (b) determining what level of theory and knowledge development relevant to the research topic, (c) determining relevance of the current/existing knowledge in relation to research problem.

Major Steps to Literature Review

(a) Determine when to conduct a search, (b) Delimit what is searched, (c) Access database for books, journals, and documents, (d) Organize the information gathered, (e) Critically evaluate the literature, (f) Write the literature review

Primary Techniques for Incorporating Source Material

Example: The example for each technique is based on the statement, "Skin cancer is generally divided into two main classes, nonmelanomas and melanomas, both types affecting different types of skin cells" (Joyce 2005, 143).

Technique	Description	Example
Quoting	Exact words used in the original are placed in quotation markers	"Skin cancer is generally divided into two main classes."
Paraphrasing	Information from a source is restated in a that retains the essence of the original statement	There are two primary types of skin cancer.
Summarizing	Key points from the source material are rewritten in a more succinct, more focused way in the student's own words	The type of skin cell affected depends on the type of skin cancer.

Example of Citation Styles

The three most common citation used style guides/publication are the following: (a) American Psychological Association, (b) the University of Chicago Press, and the (c) Modern Language Association.

Citation Style	Journal	Book	Web Source
APA **American Psychological Association**	*Journal Article without Digital Object Identifier (DOI)* Light, M.A., & Light, I.H. (2008). The geographic expansion of Mexican immigration in the United States and its implications for local law enforcement, *Law Enforcement Executive Forum Journal*, 8(1), 73-82. *Journal article with DOI* Herbst-Damm, K.l., & Kulik, J.A. (2005). Volunteer support, marital status, and the survival times of terminally ill patients. *Health Psychology*, 24, 225-229, doi: 10.1037/0278-6133.24.2.225	Shotton, M.A. (1989). *Computer addiction: A study of computer dependency*. London, England: Taylor & Francis	PZ Myers. (2007, January 22). The unfortunate prerequisites and consequences of partitioning your mind [Web log post]. Retrieved from http://scienceblogs.com/pharyngula/2007/01/the-unfortunate_prerequisites.php
Chicago	Calabrese, E.J. and L.A. Baldwin, 1999. Reevaluation of the fundamental close-response relationship, *Bioscience* 49:725-32	Martin du Gard, Roger. Leiutenant-Colonel de Maumort. Translated by Luc Brebion an Timothy Crouse. New York: Alfred A Knopf, 2000.	*Website, owner of site used for author* Federation of American Scientists. Resolution comparison: Reading license plates and headlines. http://www.fas.org/irp/imint/resolves.htm
MLA (Modern Language Association)			*Web publication* Eaves, Morris Robert Essick, and Joseph Viscomi, eds. The William Blake Archive, Lib of Cong, 28 Sept., 2007. <http://www.blakearchive.org/blake/>

5. **What is a Research Design?**

Some definitions of research design are as follows:

- A technical document where the decisions to conduct a research project, including some exploratory work have been stated, justified, evaluated and completed
- An overall action plan or scheme which contains specific structure and strategy of investigation to obtain answers to identified research questions and to control variance.
- A process link research questions, empirical data, and research conclusions
- Considered as a working document derived from courses/modules taken in research methods/methodology, as well as an output from the discussions between the supervisor and a student
- It aims to provide framework for the collection, analysis and interpretation of data; and it specify or designate the logical manner by which the variable units are compared and analyzed
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6. **Basic Elements of a Research Design**

The fundamental stages by which choices need to be made are as follows. (a) research topic/problem, (b) research questions and objectives, (c) research methods, techniques and strategies, (d) research concepts, hypotheses and models, (e) data sources, types of and forms, (f)selection from data sources, (g) data collection and timing, (h) data reduction and analysis. In general, a research design needs to answer basic questions: what will be studied? Why will it be studied, and how will it be studied? The selection or choice of a research design is the most important decision to make because this decision greatly influence s and have direct impacts in the prospective results of the study. Every type of research design setting has its own individual central characteristics and expected outcomes as illustrated in the table below.

Type	Characteristics	Outcome
Sample survey	- It deals with a fraction of o total population - It employs a sampling method to provide a sample that represents the total population - Test hypotheses are also established	- Data analysis is based on a simple relationship between two variables - It utilizes both qualitative and quantitative analysis
Field Study	- It concern primarily with processes and patterns under investigation (community, group) - It emphasizes on the social structure and social interactions	- The data gathered enable to test many hypotheses compare to the sample survey - General control through focusing on subgroup of larger population
Case Study	- Intensive analysis of a single instance of a phenomenon being investigated - It attempts to discover unique features and common characteristics - Cases is grouped by type to discover uniformities	- Concepts is discovered and tested - Cases are coded and statistically tested
Combined survey ad case study	- Survey methodology is utilized to determine relationship in a correlational pattern, and then interpreted using case study to discover patterns and processes - Cases selected from the results of the survey analysis particularly with significant results	Creation of two databanks,: case study analysis and statistical data Relationships accompanied by process and pattern data

Designing a Research Strategy
(a) What type of research topic/study are you working? (b) How much time do you have? (c) What type of information do you need?

7. **Variables** - It is defined as a quantity susceptible of fluctuation or change in value or magnitude under different conditions. Numerical values or categories represent these quantities.

   Types of Variables:
   a. Independent variable – the stimulus variable which is chosen by the researcher to determine its relationship to an observed phenomenon. This is the one being manipulated.
   b. Dependent variable – this is the response variable which is observed and measured to determine the effect of the independent variable – it changes when the independent variable varies.
   c. Moderate variable - this is a secondary or special type of independent variable to determine if it changes or modifies the relationship between the independent and dependent variables.
   d. Control variable - this is a variable that is controlled in which the effects can be neutralized by eliminating or removing the variable.
   e. Intervening variable – this is a variable which interferes with the independent and dependent variables, either its strengthen or weaken these variables.

REMINDER: REQUIRED READINGS FROM PALER-CALMORIN AND CALMORIN (2007)

Read Chapter 2. Try to answer the exercises after each chapter. Please refrain from looking at the key answers prior to answering the questions. The handouts are only summaries of these chapters, thus it is still good to read the book for better understanding and to augment your learning.

INDIVIDUAL ASSIGNMENT #2: DUE ON 31 AUGUST 2019

From the internet, retrieve a copy of a journal article using the Sci-Hub (https://sci-hub.tw/) to get a free e-copy of the chosen journal article. The Sci-Hub link is found in the website. This article should be related to your proposed topic that you wanted to pursue in the completion of the course. Print this journal article that you have selected and bring it to the class.