**HANDOUT #3**

**RES421 Introduction to Research and FS TTh – 11:30-1:00PM**

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1. **The Research Problem**

There are factors to consider to determine whether that a problem I researchable or not. These factors : (a) the problem is existing in the locality or country but known solution to the problem, (b) the solution can be answered by using statistical method and techniques, (c) there are probable solutions but they are not yet tested, (d) the occurrence of phenomena requires scientific investigation to arrive at precise solution, and (e) serious needs/problems of the people where it demands research.

1. **Basic Sources for Research topic and problem identification**
* Professional experience: the most and immediate source of information
* Societal trends – as reflected in the policies, legislations, and funding priorities
* Professional trends – as reflected in newsletters and professional publications
* Published research – research studies from journals and reports
* Existing theory – as puts forward a number of relationships between concepts and theory
1. **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.

1. **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
1. **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 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
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| 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
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| 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
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| 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 dataRelationships accompanied by process and pattern data |

1. **The Research Hypotheses**

It is defined as a wise guess that is formulated and temporarily adopted to explain the observed facts covered by the study. It guides the researcher in that it describes the procedure to follow in conducting the study. It also tells the researcher what to do and how to go about solving a research problem. Types: null hypothesis and alternative hypothesis.

1. **Theoretical Framework –** shapes the justification of the research problem/objectives in order to provide the legal basis for defining its parameters. It is a symbolic construction which uses abstract concepts, facts or laws, variables and their relations that explain and predict how an observed phenomenon exists and operates.
2. **Conceptual Framework** – presents specific and well-defined concepts which are called constructs. The constructs used are derived from abstract concepts of the theoretical framework.
3. **Assumptions** –are presumed to be true statements of facts related to the research problem.

**SUGGESTED READING MATERIALS**

1. Paler-Calmorin & L, Calmorin, M A (2007). *Research Methods and Thesis Writing*, 2nd edition, Rex Book Store, Manila, Philippines
2. Albert, J R (2008*). Basic Statistics for the Tertiary Level*, Padua, Patungan & arquez (eds), Rex Book Store, Manila, Philippines
3. Asaad, A S (2008). *Statistics Made Simple for Researchers*, Rex Book Store, Manila, Philippines
4. Sanchez, C A (1998*). Methods Techniques of Research*, 3rd Edition, Rex Book Store, Manila, Philippines
5. Jha, A S (2011). *Research Methodology*, APH Publishing Corporation, Delhi, India
6. Mustafa, A (2010). *Research Methodology*, AITBS Publishers, India

**ASSIGNMENT #2 (INDIVIDUAL WORK) DUE ON 13 JANUARY 2017, 5PM**

1. Prepare an Abstract Proposal of your proposed research project
2. The Abstract Proposal contains the following: Background/Introduction, Rationale or Statement of the Problem (why there is a need to conduct this research), objectives, and References (APA Format).
3. Submit it in one sheet of bond paper (Letter size, single spacing 11/12 fonts, Times Roman/Arial/Calibri)

**SAMPLE REPORT: ABSTRACT OF PROPOSAL**

**Title of the Proposed Research Project**

1. **Background/Introduction**

*Explain the current or existing condition or situation in relation to your topic. You have to explain the problem or concern to be solved; or any improvement and modification to be done. This should be supported by the review of literature or past studies.*

1. **Rationale: Why there is a need to undertake this research project?**

*Is your topic has a contribution to the body of knowledge. You have to explain the significance contribution of your topic. What is the main difference of your project to current or existing project – equipment/instrument, system/process.*

1. **Objectives/Statement of the Problem**

*Identify at least 3 objectives or research questions of the study. Objectives are SMART (specific, measurable, achievable, realistic, and time bound).*

1. **References (at least three – journal articles, theses, technical papers presented in conferences, magazines, books).**

*Use the American Psychological Association (APA) form/style of referencing. Refer to the Guidebook posted in the website:* ***http://rsucivilengineering.weebly.com/ce421eeres421-research.html***