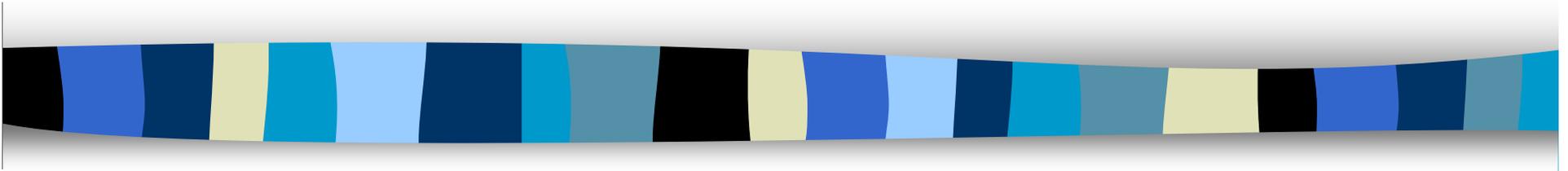


SEN-SRN Conversion Course

Research Module



Research Process

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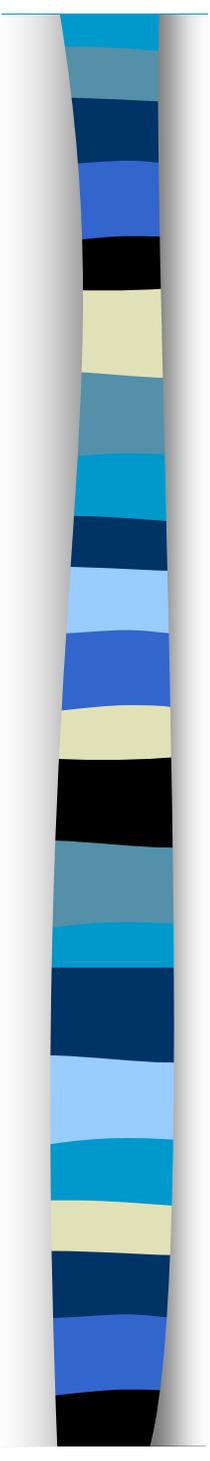
Lecture Overview

- **Identify the Problem**
- **Determine the Purpose of the Study**
- **Review the Literature**
- **Develop a Theoretical Framework**
- **Identify the Study Assumptions**
- **Define Study Variables**
- **Acknowledge the Limitations of the Study**
- **Formulate the Hypothesis**
- **Select the Research Design**
- **Identify the Population & Select the Sample**
- **Conduct a Pilot Study**
- **Collect the Data**
- **Organise the Data for Analysis**
- **Analyse the Data**
- **Interpret the Findings**



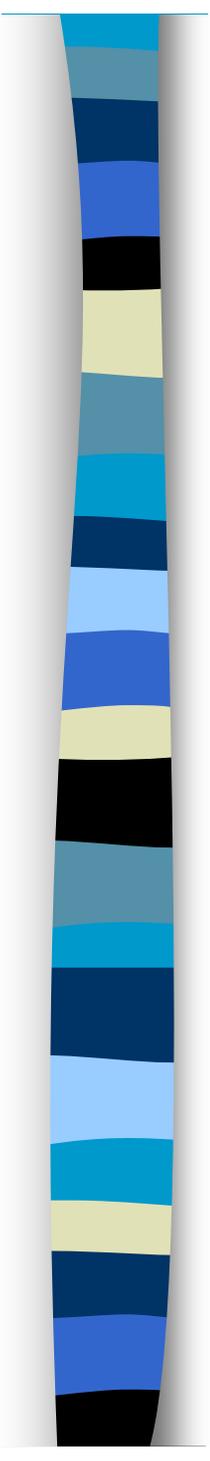
Identify the Problem

- **The first step in the research process is to clearly identify the problem/topic that will be studied. When thinking about a suitable topic it is important to consider the implications of your choose:**
- Can information be gathered locally?
- What are your interests and will this interest be maintained for the duration of the research?
- Who will be interested in the research?
- Is the scope so broad that it will lose direction?
- Does it involve technology that is readily available?
- Is training in technology and/or software readily available?



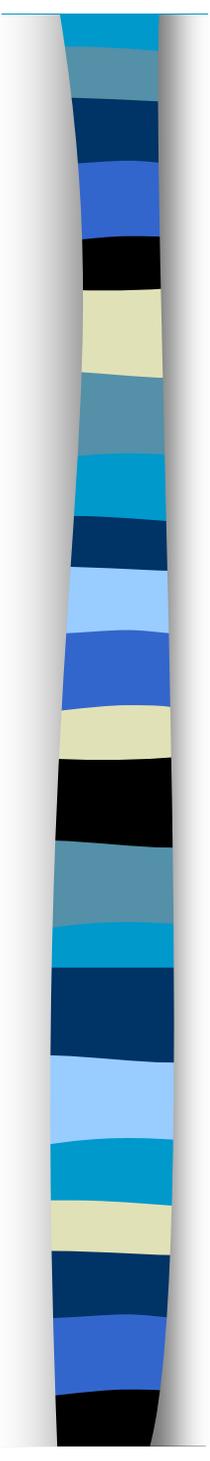
Determine the Purpose of the Study

- The problem statement addresses ***what*** will be studied; the purpose furnishes ***why*** the study is being done.
- There must be a sound rationale or justification for every research project.
- If the purpose of a study is clearly presented and justified, the researcher will be much more likely to receive approval for the study and also will be more likely to obtain subjects (participants) for the study.



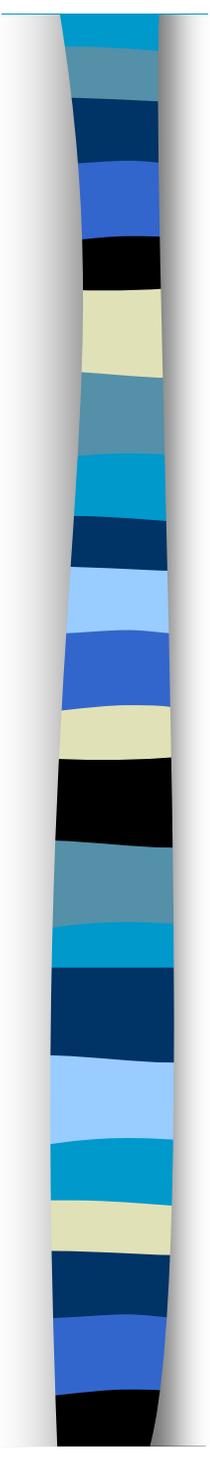
Review the Literature

- Research should build on previous knowledge.
- Determine what knowledge exists of the study topic.
- Helps to develop a theoretical or conceptual framework for the study.
- Plan study methods.
- Instruments or tools may be discovered that can be used to measure the study variables.
- Profit from the success and failures of other researchers.
- The problem area may be determined from the suggestions or recommendations of researchers who have conducted previous studies in the area of interest.



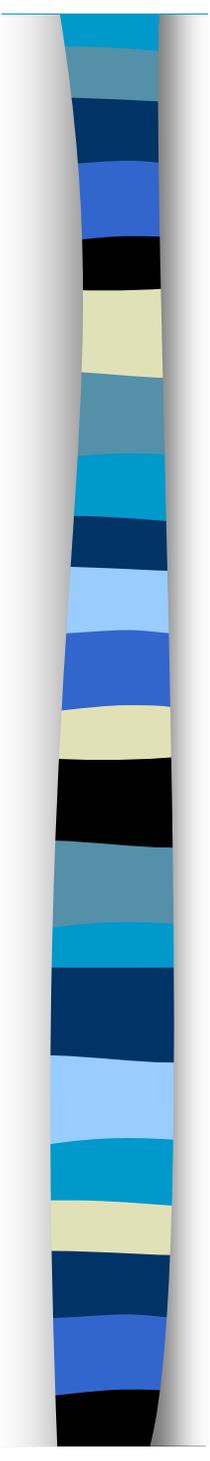
Develop a Theoretical Framework

- **The goal of research is to develop scientific knowledge.**
- **Research can test theories as well as help to develop and refine theories.**
- **Research that is conducted within the context of a theoretical framework, compared to research that is not theory based, is more valuable in providing understanding and knowledge that can be used in the future.**
- **Research without theory provides a set of isolated facts.**



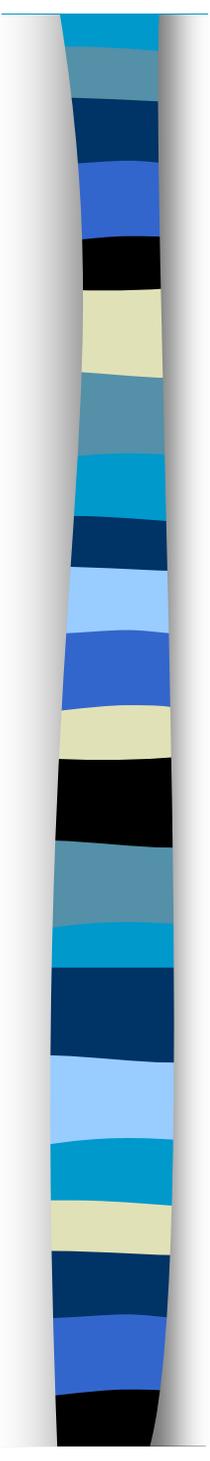
Identify the Study Assumptions

- **Assumptions are beliefs that are held to be true but have not necessarily been proven.**
- **Each scientific investigation is based on assumptions.**
- **These assumptions should be stated explicitly (clearly).**
- **Frequently, however, the assumptions are implicit.**
- **This means that the study was based on certain assumptions but the researcher did not openly acknowledge or list these assumptions.**



Define Study Variables

- **A variable is a characteristic or attribute of a person or object that differs among the persons or objects that are being studied, e.g., age, blood type.**
- **The variables in a study need to be defined so that their meaning is clear to the researcher and to the reader of the research report.**
- **An indication should be given of how this variable will be observed and measured.**



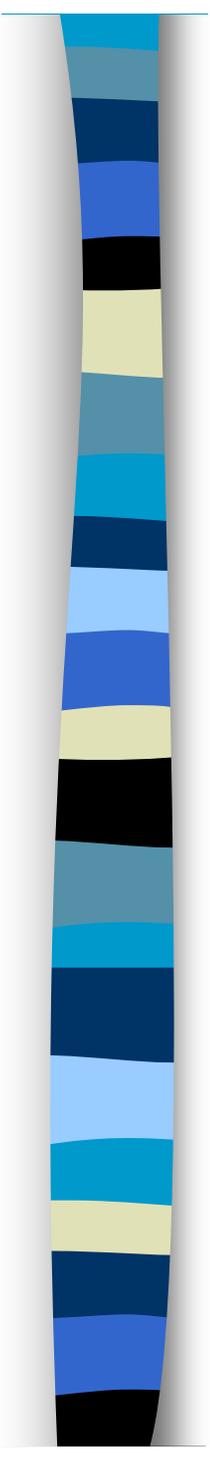
Acknowledge the Limitations of the Study

- **Limitations are uncontrolled variables that may affect study results and limit the generalization of the findings.**
- **Try to identify study limitations or weaknesses, e.g., the educational level of subjects would be a study limitation if the researcher could not control this variable.**
- **Acknowledge the limitations of a study, as much as possible, before data are collected.**
- **The limitations must be taken into consideration when the conclusions of a study are formulated and when recommendations are made for future research.**



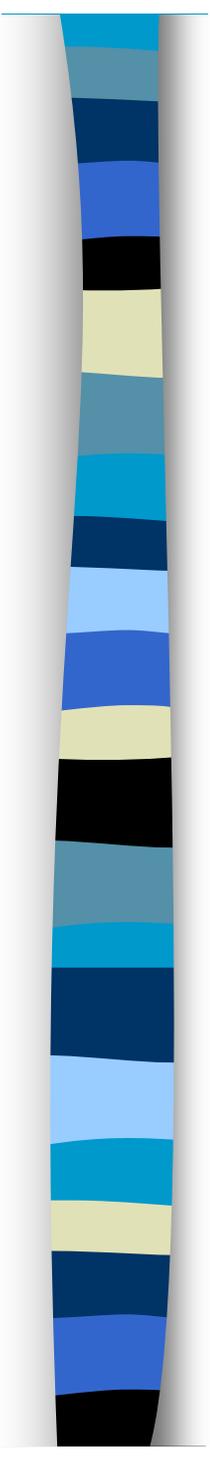
Formulate the Hypothesis

- In scientific research, hypotheses are intelligent guesses that assist the researcher in seeking the solution to a problem.
- Whereas the problem statement presents the question that is to be asked in the study, the hypothesis presents the answer to the question.
- Hypotheses provide the reader with an understanding of the researcher's expectations about the study before data collection begins.
- Hypotheses should always be written before the study and should not be changed after the study results are examined. This is like changing your choice of who will win a race after you have already watched the finish of the race.



Select the Research Design

- The research design is the plan for how the study will be conducted. It is concerned with the type of data that will be collected and the means used to obtain this data.
- Research designs can be categorised as quantitative or qualitative.
- Quantitative research is concerned with objectivity, tight controls over the research situation, and the ability to generalise findings. This type of research is based mostly on numerical methods.
- Qualitative research is concerned with the subjects meaning of an experience to an individual. Based mostly on observational methods.
- E.g. Pain Study. Quantitative: Level of pain
 Qualitative: Quality of life coping with pain



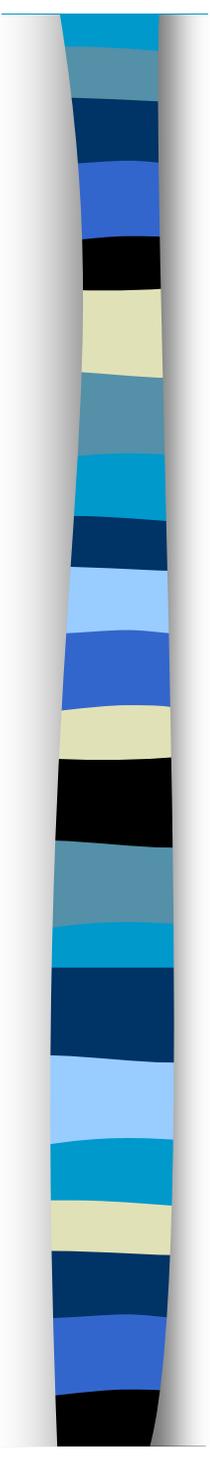
Identify the Population

- **The population is a complete set of individuals or objects that possess some common characteristic of interest to the researcher.**
- The target population, also called the universe, is made up of the group of people or objects to which the researcher wishes to generalise the findings of a study.
- The accessible population is that group that is actually available for the study by the researcher.
- The term “population” does not always mean that human beings will be studied. A nurse researcher might study a population of charts or a population of blood pressure readings for example. By identifying the population, the researcher makes clear the group to which the study results can be applied.



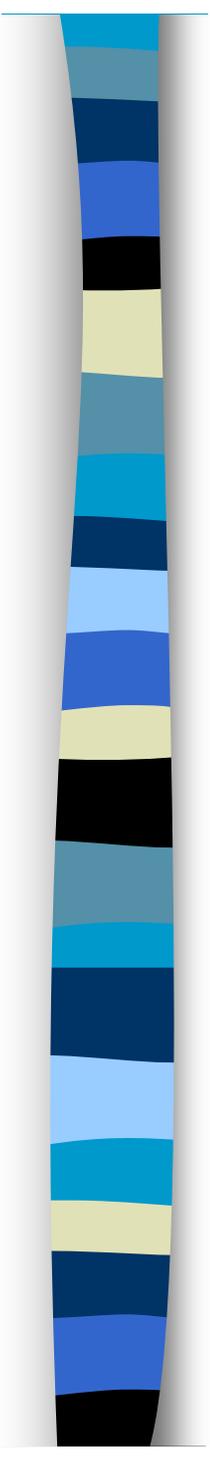
Select the Sample

- **A sample is a subgroup of the population chosen to represent the population.**
- **Obtaining data from an entire population is costly and time consuming, and it may even be impossible, at times, to contact or locate every member of a given population. If the sample is carefully selected, the researcher can make generalisations about the population with a certain degree of confidence.**
- **The random selection process is one of the processes that can be used to select the sample population.**
- **This process ensures that each member of the population has a chance of being in the sample.**



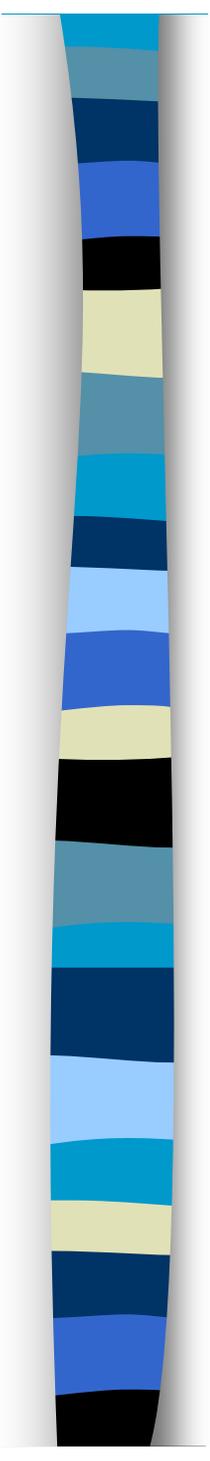
Conduct a Pilot Study

- **A pilot study involves a miniature, trial version of the planned study. People selected for the pilot study are similar in characteristics to the sample that will be used for the actual study.**
- **It is advisable to conduct a pilot study before the study subjects are approached and the actual study is carried out for the following reasons:**
 - Prevent the researcher from conducting a large-scale study that might be an expensive disaster.
 - Determine the feasibility of the study.
 - Test and gain experience on the methodology and instruments that will be used.
 - Identify potential problems in data collection.
 - Factors can be examined, such as how long it will take to conduct the data collection and how subjects can be expected to respond to the data collection methods.



Collect the Data

- **The data are the pieces of information or facts that are collected in scientific investigations.**
- **Data collection should be a systematic process. Questions that must be answered are:**
 - What data will be collected?
 - How will the data be collected?
 - Who will collect the data?
 - Where will the data be collected?
 - When will the data be collected?
- There are many alternatives to choose from when deciding on a data-collection method. Questionnaires, interviews, observational methods are some forms of data-collection methods.



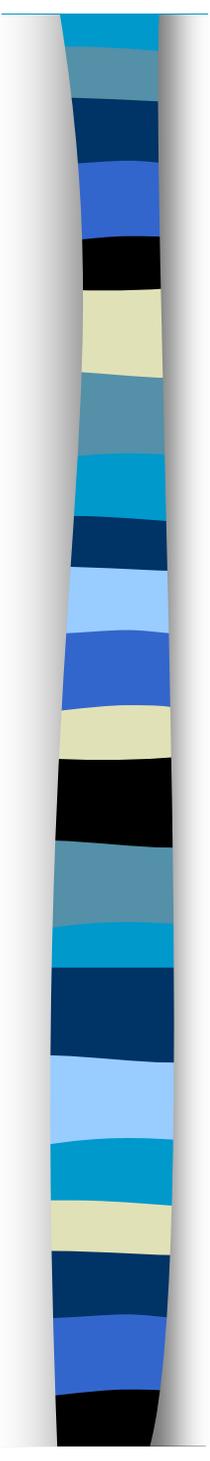
Organise the Data for Analysis

- **After the data are collected, it is necessary to organise the data for tabulation and evaluation. Actually, this step of the research process should have been planned long before the data were collected.**
- **A statistician should be consulted in the early phase of the research process, as well as in the data analysis phase of the study.**
- **The statistician can help to determine what data are needed for a study and what statistical procedures will be appropriate to analyse the data.**



Analyse the Data

- **Once you have discussed with the statistician how you are going to analyse the data collected, the process would not be that difficult.**
- **In this day of computers, data analysis has been greatly simplified.**
- **Now, a researcher can sit at a computer terminal and input large amounts of data and receive the results of the analysis almost instantaneously.**



Interpret the Findings

- After the data are analysed, the findings should be interpreted in light of the study hypothesis (es). A determination should be made as to whether the data supports the research hypothesis.
- The researcher should discuss any problems incurred in the course of the study or any limitations of the design that may have influenced the study results.
- The results of the present study are compared with those of previous studies that investigated the same or similar variables; the researcher thus is able to contribute to the existing body of knowledge on the study topic.
- After the findings are interpreted, the researcher should indicate the implications for nursing. A consideration is made of changes that might be called for in nursing practice, nursing education, or nursing administration as result of the study findings.
- Finally, recommendations for future research are proposed.