



มหาวิทยาลัยราชภัฏนครปฐม  
Nakhon Pathom Rajabhat University

# CHAPTER 2

## RESEARCH PROCESS AND INNOVATIONS DEVELOPMENT

กระบวนการวิจัยและพัฒนานวัตกรรม



Asst. Prof.Dr. Wanpen Waelveerakup  
Email: [wanpenw@webmail.npru.ac.th](mailto:wanpenw@webmail.npru.ac.th)



# Research Processes and Innovation Development



# What is the Research process?

The research process consists of a series of actions or steps necessary to effectively carry out research. These actions or steps are;

- Formulating the research problem
- Literature review
- Developing a research hypothesis
- Preparing and determining research design
- Data collection
- Analysis of data
- Hypothesis testing
- Interpretation
- Preparing the report or presentation of the result

(Pandey & Pandey, 2015)



# Formulating the Research Problem



- Research problem is the extraction of the problem by issue clearly to write a research question.
  
- The source of the research problem may be from
  - National research policy
  - Finding common problems with areas
  - Finding research problems from funding sources
  - Find problems from gaps in practice or knowledge
  - Review of theory or research
  - The experience of the researchers themselves

(Waelveerakup, 2022)



# Formulating the Research Problem

A research problem is a statement of question sentences that the researcher wants to find answers to.

FINER criteria for a good research question

- F : feasible (ความเป็นไปได้)
- I : interesting (ความน่าสนใจ)
- N : novel (ความใหม่ หรือ ความแตกต่าง)
- E : ethical (ความมีจริยธรรม)
- R : relevant (ความตรงประเด็น)

(Hulley, Cummings, Branner, Grady & Newman, 2013)



# Literature Review

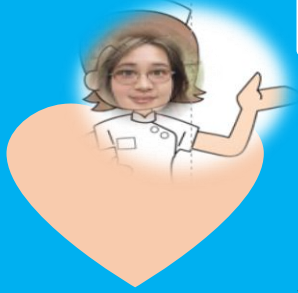


- Once the problem is formulated the researcher should undertake an extensive literature survey connected with the problem.

(Pandey & Pandey, 2015)



# Developing Research Hypothesis



- After an extensive literature survey, a researcher should state in clear terms the working hypothesis or hypotheses.
- A tentative statement about a population parameter that might be true or wrong.

(Pandey & Pandey, 2015)



# Preparing and Determining Research Design



## TYPE OF RESEARCH IN NURSING



### 1. QUANTITATIVE RESEARCH

- 1) Descriptive
- 2) Correlational
- 3) Quasi-experimental
- 4) Experimental

### 2. QUALITATIVE RESEARCH

- 1) Phenomenological  
(ปรากฏการณ์วิทยา)
- 2) Grounded theory  
(ทฤษฎีรากฐาน)
- 1) Ethnographic  
(เชิงชาติพันธุ์วรรณา)
- 4) Historical  
(เชิงประวัติศาสตร์)

### 3. OUTCOME RESEARCH

- Quantitative
- Mixed methods

(Roberts & Burke, 1989; Weeda, Pilch & Annemans, 2019)



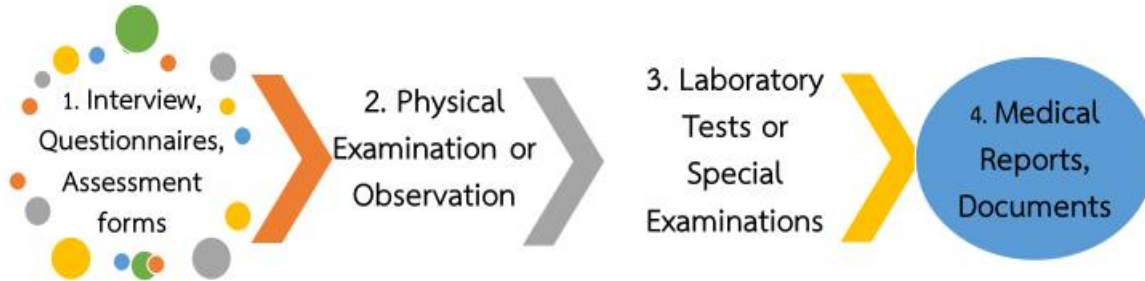


# Data Collection



# Analysis of Data

## Data Collection



(Waelveerakup, 2022)

## Data Analysis

- **Descriptive statistics** / Simple test - Mean, standard deviation (SD), standard error of the mean (SEM)
- **Statistical tests** - Compare mean: ANOVA, t-tests, etc.
  - Compare observed results: Chi-square
- **Statistical tests** - Predicting: regression

(Pandey & Pandey, 2015)

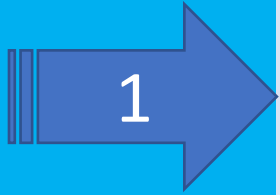


# Research Processes and Innovation Development

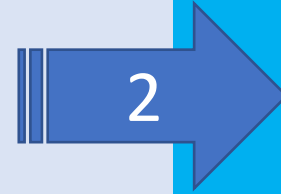
- Hypothesis Testing
- Interpretation
- Preparing the Report or Presentation of the Result



# Summarize Research Process



- Formulating the research problem
- Literature review
- Developing a research hypothesis
- Preparing and determining research design



- Data collection
- Analysis of data
- Hypothesis testing
- Interpretation



- Preparing the report or presentation of the result



*Thank you*

Email: [wanpenw@webmail.npru.ac.th](mailto:wanpenw@webmail.npru.ac.th)