

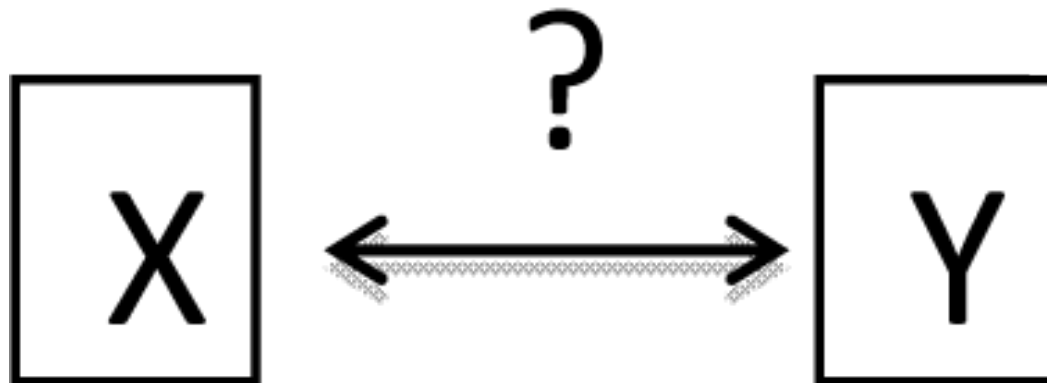
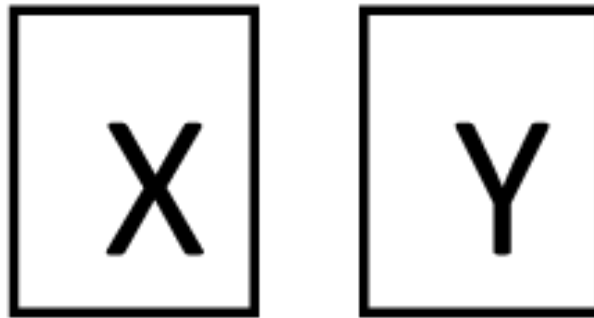
# Designing



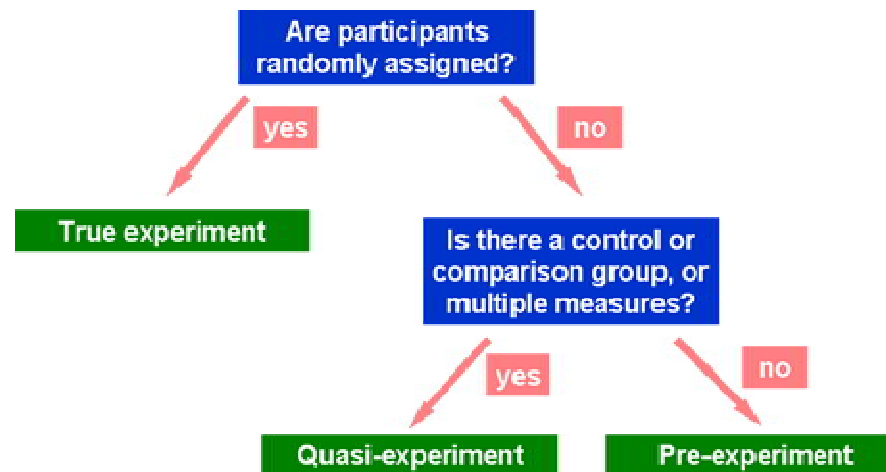
Presented by Misdi, S.Pd. M.Pd.

Remember what is an **EXPERIMENT?**

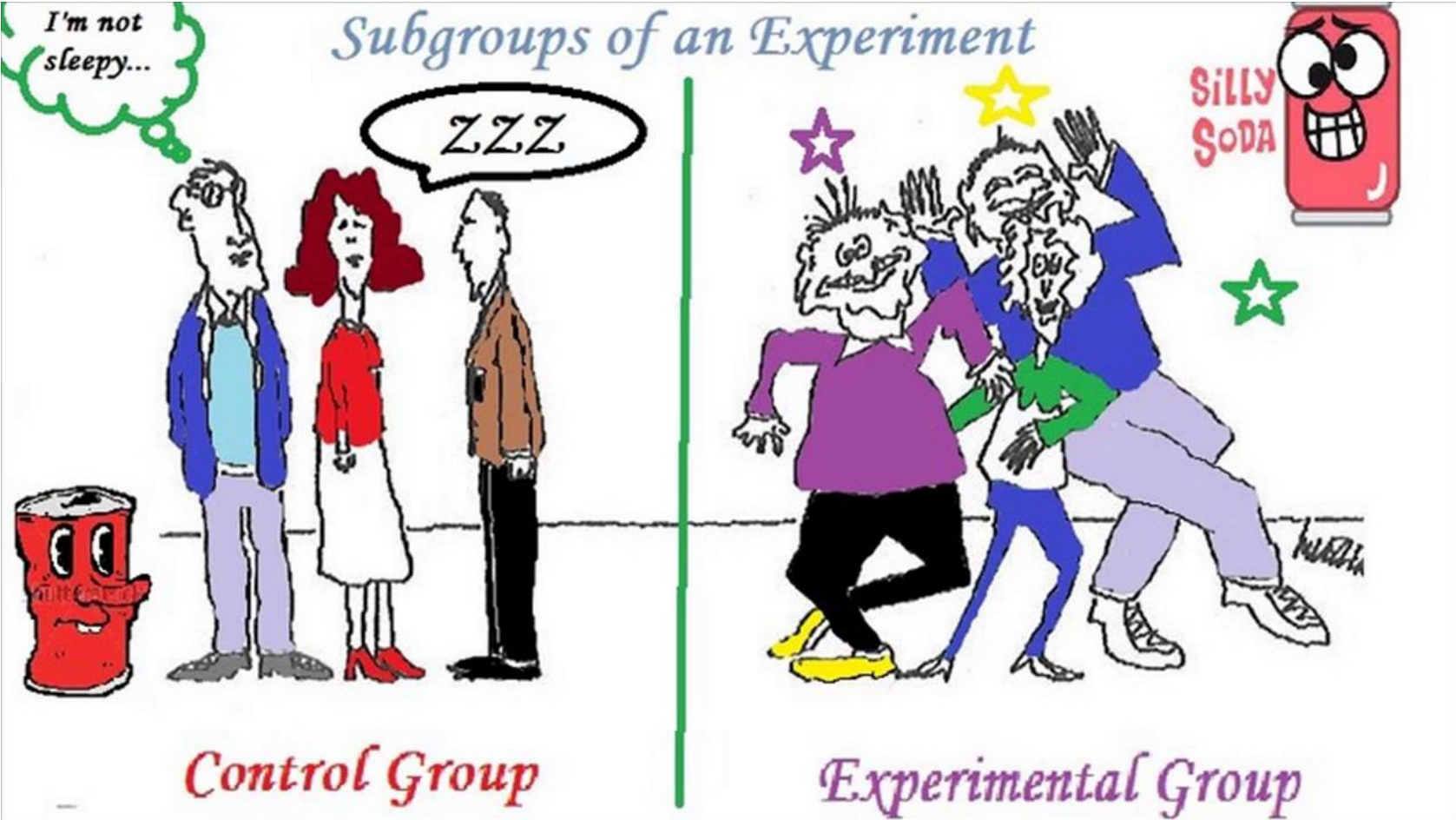
? ?



# True exp. Or OTHERS?



# Take a minute!



# Which one do you like?



## EXPERIMENTAL RESEARCH DESIGN

### 1. PRE-EXPERIMENTAL DESIGN

*One-Shot Case Study Design*

*One-group Pretest Posttest Design*

*Static Group Comparison*

### 2. TRUE EXPERIMENTAL DESIGN

*Posttest only Control Group Design*

*Pretest Posttest Control Group Design*

*Solomon Four Group Design*

### 3. QUASI-EXPERIMENTAL DESIGN

*Non-equivalent Control Group*

*Time Series*

### 4. FACTORIAL DESIGN

*Multiple Time Series*

# Pre-Experimental Design

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No Randomization

One-shot Case Study. A **treatment (x)** is applied (e.g., new training strategy) to an intact group and then changes are **observed (o)** - e.g., in job performance.



One Group, Pre-Post Test Study. An intact group is "tested" on job performance before the training session and then tested again after the training.



## **ADVANTAGES OF PRE-EXPERIMENTAL DESIGN:**

- Very simple & convenient to conduct these studies in natural settings, especially in nursing.
- Most suitable design for the beginners in the field of experimental research.

## **DISADVANTAGES OF PRE-EXPERIMENTAL DESIGN:**

- Considered a very weak experimental design to establish casual relationship between independent & dependant variables, because it controls no threat to internal validity.
- It has very little control over the research.
- It has a higher threat to internal validity of research, & may have a selection bias, which can be very serious threats for in using this particular design.



# TRUE EXPERIMENTAL DESIGNS

## Pretest/Posttest Design with Control Group and Random Assignment



- Measurement of pre-existing differences
- Controls most threats to internal validity



## ADVANTAGES OF TRUE EXPERIMENTAL DESIGN

- Experimental research designs are considered the most powerful designs to establish the causal relationship between independent & dependant variables.
- Where the purpose of research is explanation, causal relationship may be established among the variables by experimentation, especially in studies involving physical objects, where the variables are more easily controlled than in human studies.
- In this studies, the controlled environment in which the study is conducted can yield a greater degree of purity in observation.

## DISADVANTAGES OF TRUE EXPERIMENTAL DESIGN

- Most of the times, the results of experimental research designs cannot be replicated in studies conducted on human beings due to ethical problems.
- For certain research problems, because of the danger to physical & psychological health of the human subjects, it is not possible to conduct experiments on human beings.
- Many of the human variables neither have valid measurable criteria nor instruments to measure them. For example, patient welfare or level of wellness cannot be measured on any scale or by any instrument. In these situations, if a refined experimental design is used, there may be a mismatch of research design & the variable-measuring instruments.

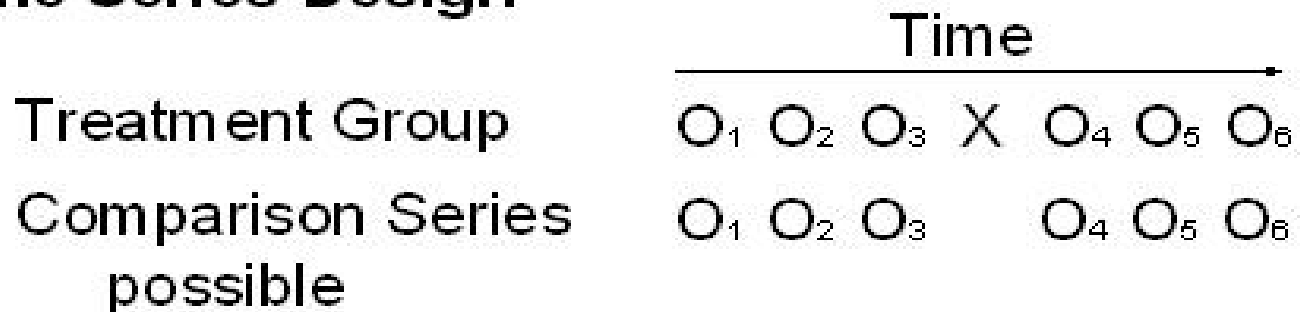
# Suggested quasi exp. design

## Strong Quasi-Experimental Designs

### Non-equivalent Control Group Design



### Time Series Design



## INTRODUCTION...

- Quasi-experimental research design involves the manipulation of independent variable to observe to effect on dependant variable, but it lacks at least one of the two characteristics of the true experimental design; randomization or a control group.
- In other words, quasi-experimental designs have an element of manipulation but lack at least one of the other two properties that characterize true experiments; randomization or a control group.
- Quasi-experimental designs are generally used to establish the causality (effect of independent variable on dependent variable) in situations where researchers are not able to randomly assign the subjects to groups or for various reasons no control group is available for an experimental study.

# Quasi-Experimental Design

In a quasi-experimental study, the experimenter does not have complete control over manipulation of the independent variable or how participants are assigned to the different conditions of the study.

## Advantages

- Natural setting
- Higher face validity (from practitioner viewpoint)

## Disadvantages

- Not possible to isolate cause and effect as conclusively as with a “true” experiment.

