



Republic of the Philippines
Department of Education
REGION III
SCHOOLS DIVISION OFFICE OF NUEVA ECija

COMPUTER 6
SPICT 10 RESEARCH
Second Quarter, Week 3

Name of Learner: _____

Date:

Grade Level /Section: _____

EXPERIMENTAL RESEARCH DESIGN

Background Information

Experimental Research Design, often considered to be the 'gold standard', is one of the most rigorous of all research designs. It is a scientific approach to research, where one or more independent variables are manipulated and applied to one or more dependent variables to measure their effect on the latter. The effect of the independent variables on the dependent variables is usually observed and recorded over some time, to aid researchers in drawing a reasonable conclusion regarding these two variable types.

Characteristics of Experimental Design

1. **Manipulation** - control of independent variable by the researcher through treatment/ intervention. (the ability to influence or direct the independent variable)
2. **Control** – the use of control group and extraneous variables on the dependent variables and study measurements.
3. **Randomization** – means that every member of a population has an equal chance of being selected to be a member of the sample.(unbiased /random) subject assignment to each group.

Three things occur with random assignments of subjects:

1. It takes place before the experiment begins
2. Process of assigning the groups takes place
3. Groups should be equivalent

Definitions:

Experimental Group – is a test sample or the group that receives an experimental procedure

Variable – a characteristic or factor that may take on different values. Examples time, weight, color

Independent Variable – The variables whose effects are to be studied and manipulated or change in an experiment. It can be used to predict the value of a dependent variable. (tested)

Dependent Variable – The outcome. A variable that is not under the experimenter's control. It is the variable that is observed and measured in response to the independent variable. (recorded)

DEVELOPMENTAL RESEARCH DESIGN (Definition and Scope)

Developmental research is defined as the systematic study of designing, developing and evaluating instructional programs, processes and products that must meet criteria of internal consistency and effectiveness.

Developmental research is particularly important in the field of instructional technology. The most common type of developmental

research involve situation in which the product –development process is analysed and described and the final product is evaluated. The second type of developmental research focuses more on impact of the product on the learner or the organization. The third type of study is oriented toward a general analysis of design development or evaluation process as a whole or as components.

TYPES OF DEVELOPMENTAL RESEARCH DESIGN

| Types of Developmental Research Designs | Advantages | Disadvantages |
|--|---|--|
| Longitudinal | <ul style="list-style-type: none"> • Examines changes individual over time. • Provide a developmental analysis. | <ul style="list-style-type: none"> • Expensive • Takes a long time • Participants attrition • Possibility of practice effects • Cannot examine cohort effects |
| Cross-sectional | <ul style="list-style-type: none"> • Examine changes between participants of different ages at the same point in time. • Provide information on age-related change. | <ul style="list-style-type: none"> • Cannot examine change over time. • Cannot examine cohort effects |

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|-------------------|--|---|
| Sequential | <ul style="list-style-type: none"> • Examine changes within individuals over time • Examine changes between participants of different ages at the same point in time • Can be used to examine cohort effects. | <ul style="list-style-type: none"> • May be expensive • Possibility of practice effects |
|-------------------|--|---|

ACTIVITY 1.1

Direction: Read the following experiments and fill in the blanks that follow. There are no control group listed for 3 and 4 answers,

1. A study was created to test the effects of jazz on people's sleep patterns. The hypothesis of the experiment was that if people listened to jazz music as they fall asleep, they will sleep for longer periods of time. For the experiment, 2 groups of people were created. One group was placed in a quiet room where they went to sleep and they were timed on how long they slept. The other group was placed in a room where jazz music played softly as they began to sleep and played throughout the night. As each group awoke, their sleep times were monitored.

Dependent Variable: _____ Control
Group _____

Independent Variable: _____ Experimental
Group _____

2. A study was created to test the effects of fear in children. The hypothesis of the experimenters was that if babies were exposed to fuzzy bunnies and at the same time a loud cymbal was struck close behind them, then that child would be afraid of all fuzzy things. Another group of children would be exposed to bunnies without any loud noises. The study was carried out as planned and as a result, hundreds of young children developed fear of all cute furry bunny rabbits.

Dependent Variable: _____ Control
Group _____

Independent Variable: _____ Experimental Group

3. Shortly after Ms. Jones cat, Callie, was born, Ms. Jones realized wasn't eating enough. She went to the pet store and bought many different kinds of food and fed Callie different types every day. Each day she noted the type of food and how much Callie ate out of his dish. Eventually Callie ate a lot of the Nature Balance Cat brand food and Ms. Jones bought that for him from then on. Callie is the best cat ever.

Dependent Variable: _____ Independent
Variable: _____

Experimental Group: _____

4. At a daycare, the staff has had problems with the children behaving badly every day. They begin to test to see how the children react if the staff gives them large amounts of candy when they are good and no candy when they are bad. The staff hopes that the incentive for the children will improve their behavior.

Dependent Variable: _____ Independent
Variable: _____

Experimental Group: _____

ACTIVITY 1.2

Direction: Fill up the missing words inside the box below according to the given definition.

1. It is a systematic study of designing, developing and evaluating instructional programs, processes and products that must meet criteria of internal consistency and effectiveness.

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2. Examine changes between participants of different ages at the same point in time

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3. Provide information on age-related change.

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4. Provide a developmental analysis.

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5. Characteristic or factor that may take on different values.

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6. A test sample or the group that receives an experimental procedure

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Reflection:

References:

eric.ed.gov (Developmental Research: The Definition and Scope. Richey Rita C.)

Experimental Research sd. Chandra Mohan Gaddam, Published on Dec 19, 2011

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KEY TO CORRECTION

Activity 1

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|---|---|
| 1. Dependent Variable: Sleep length sleeping | Control Group: No jazz |
| Independent Variable: Music Played | Experimental |
| Group: Listened to jazz while sleeping | |
| 2. Dependent Variable: Response to bunnies | Control Group: Played with bunnies w/no cymbal |
| Independent Variable: Music Played | Experimental Group: |
| Group: Played w/bunnies w/cymbal | |
| 3. Dependent Variable: How much Callie ate | |
| Independent Variable: Type of cat food | Experimental Group: |
| Group: Callie | |
| 4. Dependent Variable: Children's behavior | |
| Independent Variable: Candy or no candy | Experimental |
| Group: Children | |

Activity 1.2

1. DEVELOPMENTAL
2. SEQUENTIAL
3. CROSS-SECTIONAL
4. LONGITUDINAL
5. VARIABLE
6. EXPERIMENTAL

