

Assessments of the Effectiveness of LC-DLMs



Olusola Adesope

Learning Objectives

- **At the end of this presentation, attendees will be able to**
 - Describe different research designs
 - Describe different forms of assessment
 - Describe assessments in LC-DLM experiments

**EXPERIMENTAL
RESEARCH
DESIGNS**

Research Designs

- Researchers are designers, much like architects, creating different types of designs in their blueprints
- **Experimental Research Designs**
- Intervention or treatment known as a manipulation
 - ***True experimental***
 - ***Quasi-experimental***
 - *Single-subject*

Experimental Research Design

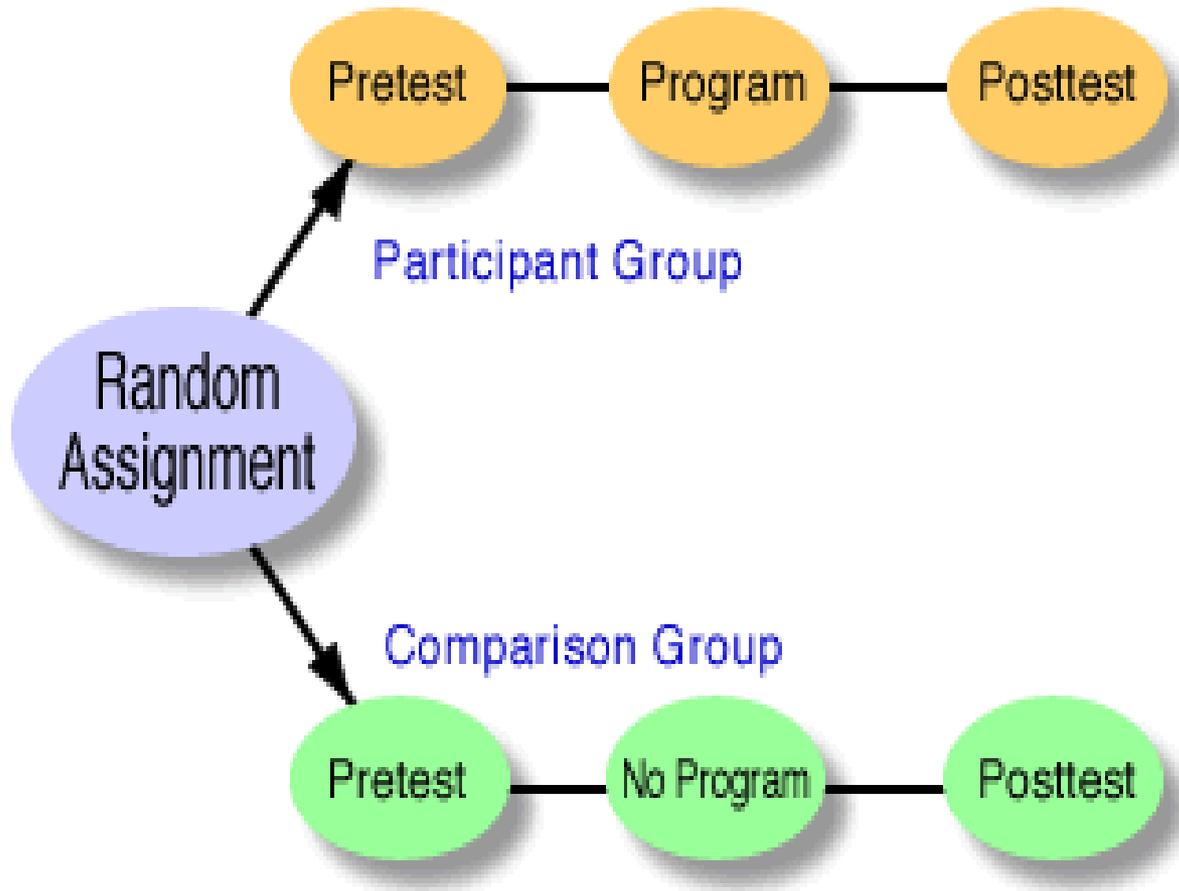
- Involve independent variables
 - ▣ Manipulation: Treatment group vs Control group
- Random Assignment?
 - ▣ **Yes** – True Experiments
 - ▣ **No** – Quasi Experiments
- Uncover cause-and-effect relationship

Examples of True Experimental Research Design

- **Randomized pretest-posttest control group design**
- **Randomized posttest control group design**
- Randomized matched control group design
- Randomized factorial design

Randomized Pretest-Posttest Control Group Designs

Randomized Pretest- Posttest Control Group



Randomized Pretest- Posttest Control Group

□ Represented as:

□ **R Pre T Post**

□ **R Pre C Post**

□ where R = random assignment; Pre = Pretest

T = treatment or experimental intervention (LC-DLMs); C = control or comparison group (Lecture or any other explicitly-delineated strategy) and Post = Posttest

Randomized Pretest- Posttest Control Group

- Participants or students are first randomized into either a LC-DLM group or Lecture group.
- Then SAME pretest is offered to both groups
- The treatment group is given the LC-DLM intervention to work with while the control group is offered lectures [or any business as usual strategy]
- Then the SAME posttest is given at the end of the LC-DLM session or lecture session
- It is advisable for the posttest to contain some questions from the pretest.
- A delayed posttest may also be given the following week or two. The delayed posttest can contain some questions from the posttest and a few additional questions not on the posttest

Randomized Pretest- Posttest Control Group

TABLE 10.1 Treatment and Control Group Results on the Pretest and Posttest

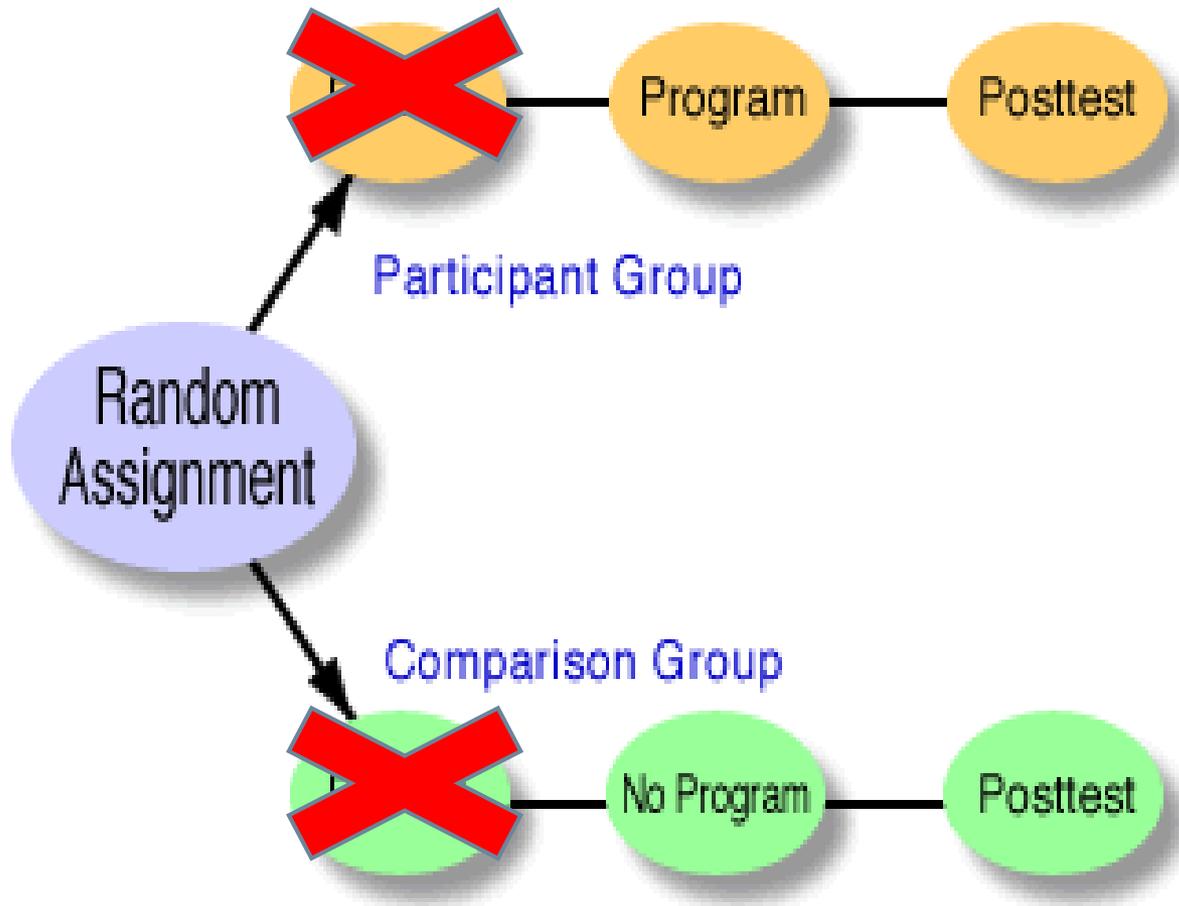
Group	Phase	
	Pretest	Posttest
Treatment	89	42
Control	94	86

Note: The outcome is the average hours of television watched.

- Treatment or intervention was responsible for the decline in watching TV
- We statistically analyze results through ANCOVA

Randomized Posttest Control Group Designs

Randomized Posttest Control Group



Randomized Posttest Control Group

□ Represented as:

□ **R T Post**

□ **R C Post**

□ where R = random assignment; T = treatment or experimental intervention (LC-DLMs); C = control or comparison group (Lecture or any other explicitly-delineated strategy) and Post = Posttest

Randomized Posttest Control Group

- Participants or students are first randomized into either a LC-DLM group or Lecture group.
- The treatment group is given the LC-DLM intervention to work with while the control group is offered lectures [or any business as usual strategy]
- Then the SAME posttest is given at the end of the LC-DLM session or lecture session
- It is advisable for the posttest to contain some questions from the pretest.
- A delayed posttest may also be given the following week or two. The delayed posttest can contain some questions from the posttest and a few additional questions not on the posttest

Examples of Quasi Experimental Research Design

- **Quasi-experimental design**
- **Matched Comparison Group**
- Counterbalanced design
- Time Series design

Quasi Experimental Designs

Quasi-Experimental Design for LC-DLMs

- Represented as:

- **Pre T Post**

- where P = pretest; T = treatment or experimental (LC-DLM) intervention; Post = posttest

- Not desirable but could be an optional design
- A whole class is first given a pretest, then given the LC-DLMs to work with and finally offered a posttest and in some cases another [delayed] posttest. Some pretest questions featured on the posttest
- Students scores on the pretest is then compared with their posttest scores. In addition, posttest scores could be compared with posttest scores of other topics taught with lectures within the same semester – with the same students.

Matched Comparison Group Designs

Matched Comparison Group

- Represented as:
 - **M** **T** **Post**
 - **M** **C** **Post**
 - where M = matching; T = treatment or experimental (LC-DLM) intervention; C = baseline comparison group (Lecture) and Post = posttest
- The three most common matching variables in educational research are age, sex and SES, because they are related to many educational outcomes.

Assessment

Assessment/Evaluation

“...systematic investigation of the worth or merit of an object.”

Joint Committee on Standards for Education Evaluation (1994)

Assessment

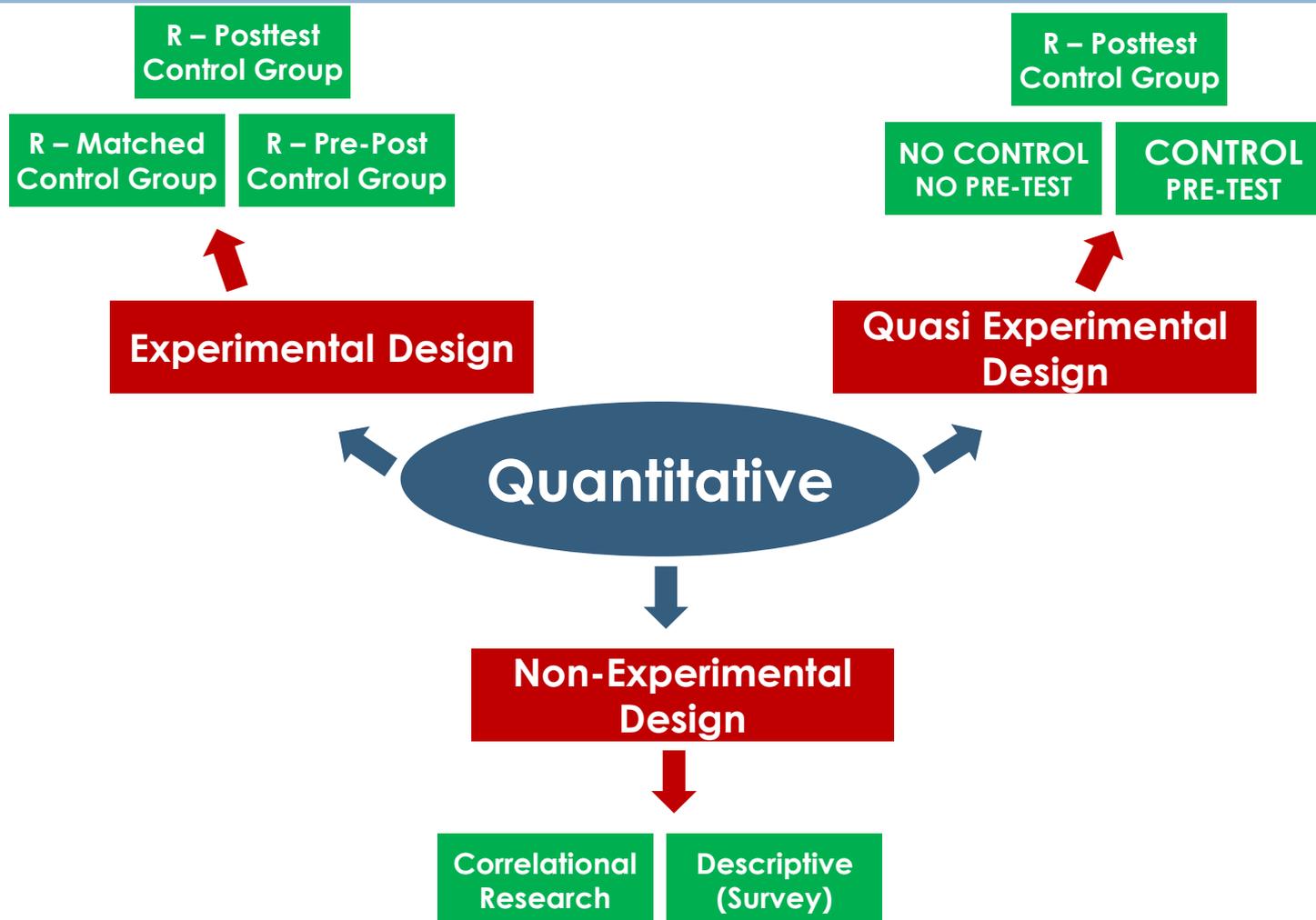
- provides information to help improve the project.



- provides new insights or new information that was not anticipated.

- Integral part of the research and development process.
- Continuous process that begins during planning.
- It is not just something that comes at the end of the project.
- regularly and iteratively performed during the project and completed when project ends.

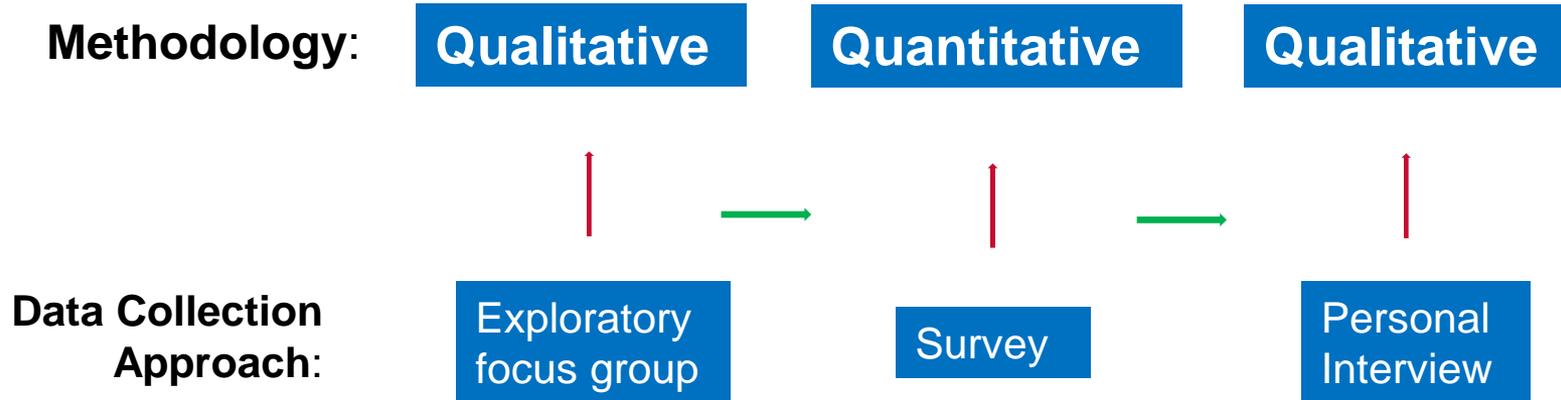
Quantitative Method



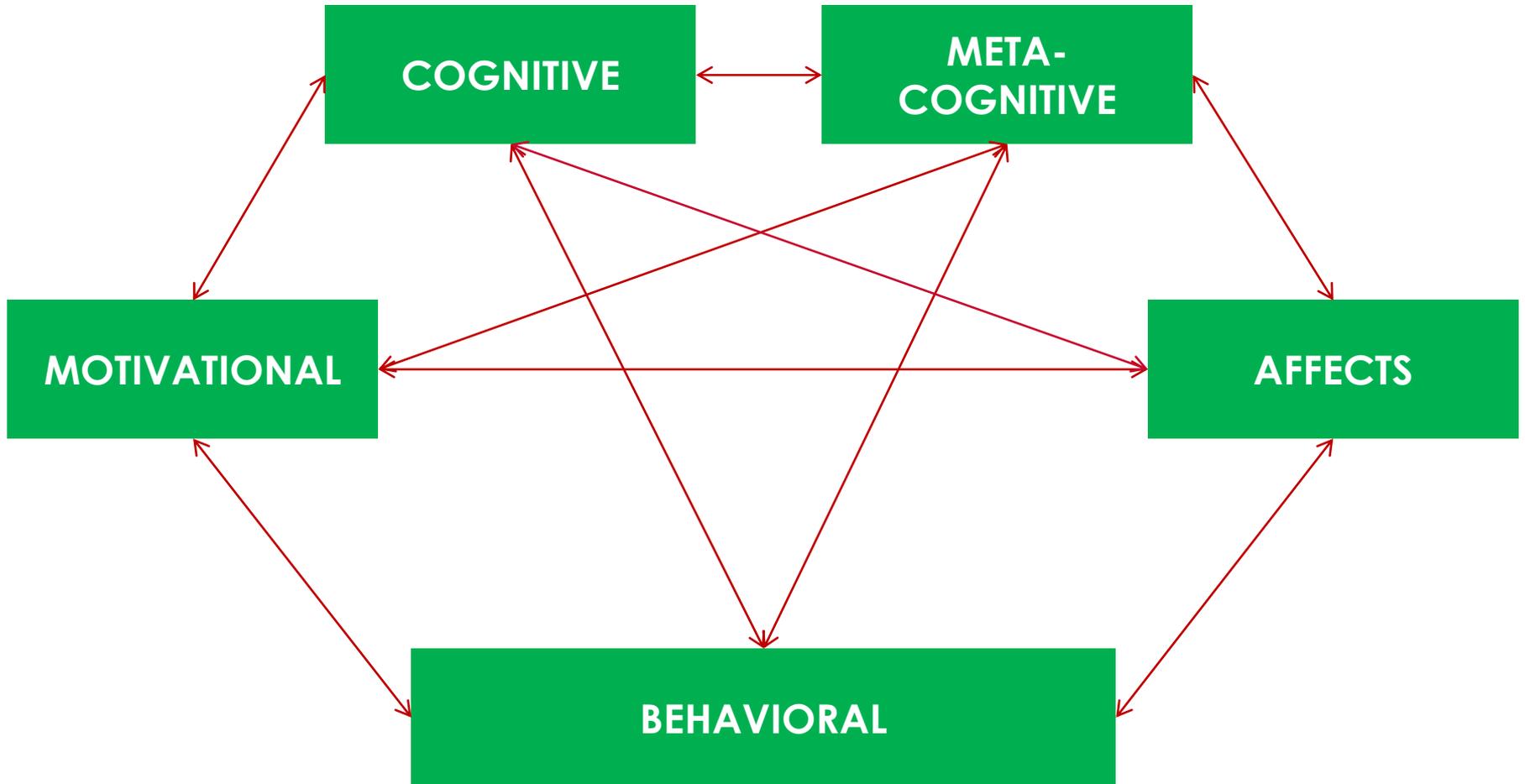
Qualitative Method



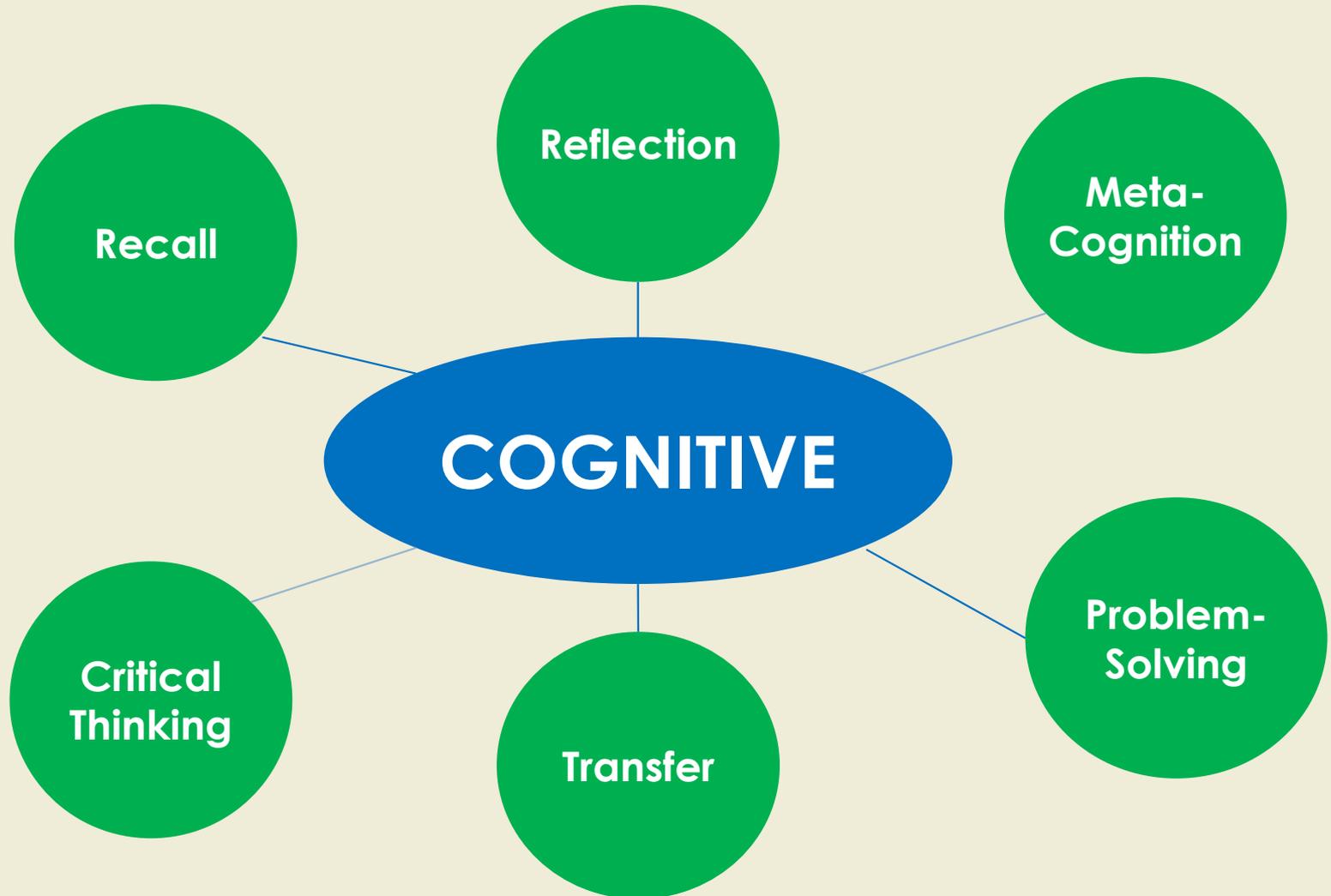
Mixed-Method



Data Collection



Example of Cognitive Measures



Example of Motivational Measures



Types of Assessment

Direct Assessments

Pre/post test, student work

Indirect Assessments

Exit Interview/survey, focus group

Quantitative Assessments

Statistical analysis of surveys
Student demographics

Qualitative Assessments

Interviews, observations
Anecdotal examples

Thank You!