

# Methodology of pedagogical research and evaluation: :

## 9. Quantitative analysis

Methodological Concept for Effectively Supporting Key Competencies  
Using the Foreign Language ATCZ62 - CLIL as a Learning Strategy at the  
College



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Europäischer Fonds für  
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Evropský fond pro  
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# Variables

- A variable means an element of exploration that acquires different values, changes (age, knowledge, intelligence) - it can be phenomenon, property, condition, factor.
- Two groups: 1. measurable (quantitative) a 2nd category / spec. Dichotomic - gender: female-male
- More than one variable is in the research.
- For a variable to be examined, it must be operationally defined.

- The variable that causes change  independently variable,
- A variable whose values have changed by the dependent variable  dependent variable.
- The dependent variable varies depending on the independent variable.
- For a variable to be examined, it must be operationally defined (When the variable is a foreign language ability, the researcher can, for example, define it as a pupil's score in Malíková's Foreign Language Test).

# Quantitative-oriented research

- Observation.
- Scaling.
- Questionnaire.
- Content analysis of text.
- Experiment.

# OBSERVATION

- *Means tracking people's activities.*
- Structured observation - the observer knows what and how he will observe.
- Observed phenomena - category of *cognitive* character (explanation of curriculum,
  - categories of *affective* character (attitudes, interests, feelings),
  - category of *psychomotor* character.

# Scraping

➤ Different sorting:

a) **The assessment scale** is a tool that allows us to determine the characteristics of the phenomenon or its intensity, we assess: - other people, phenomena, ourselves.

b) **Bipolar scales** = create opposing properties.

c) **Likert's scales** = used to measure people's attitudes and opinions. Guilford (The basic criterion is how they are administered):

numerical assessment scales,

graphic,

standard,

cumulative,

discretionary scales with forced choice.

➤ According to F. N. Kerlinger - attitudinal scales: - 1. **summative judging** = Likert type scale (the circuit maps a certain basic position of the 3-step-5 degrees: I agree, I can not express my opinion, disagree)

- 2. **scale of apparently equal intervals** = Thurstone

ranges of apparently the same intervals

- 3. **cumulative scale** = Guttman scale

# QUESTIONNAIRE

- Data collection - bulk retrieval.
  - Basic Terminology - respondent = person who completes the questionnaire
    - questions = questionnaire elements
    - items
    - administration = questionnaire
  - Types of questions: closed, open, semi-closed,
  - Questionnaire reliability - is higher when it contains multiple questions that ask for the same information.
  - Types of questionnaire survey: standardized, quasi-standardized, non-standardized.
  - **Parametric** questions (variants of responses form a continuum from one pole to another).
  - **Non-parametric** questions (sorting certain categories of statements of the same level) (can not be statistically processed).
- a special place: **control questions** (2 types: 1. doubling the question of another; 2. queries by which we determine the credibility of the client-Eysenck personality questionnaire)

# EXPERIMENT

- *Strength lies in the ability to manipulate variables.*
- terminology:
  - Subject - Persons participating in the experiment.
  - *Character* - defined property.
  - *Random selection*.
  - *Experimental plan* - layout.
  - *Experimental group* - group of subjects.
  - *Pretest* - entrance test.
  - *Posttest* - final test.



# EXPERIMENTAL METHOD

- Laboratory experiment.
- Simulation experiment.
- Natural = field experiment.
- Forming experiment.

## Q-CLASSIFICATION METHOD

- The basis is W. Stephson's methodology - to find out the correlation between responses or responses of different people to these Q-types.
- Gaussian curve - The number of cards is limited to the requirements of statistical convenience.