

TUTORIAL THREE CMED 304

# QUESTIONNAIRE DESIGN & VARIABLES

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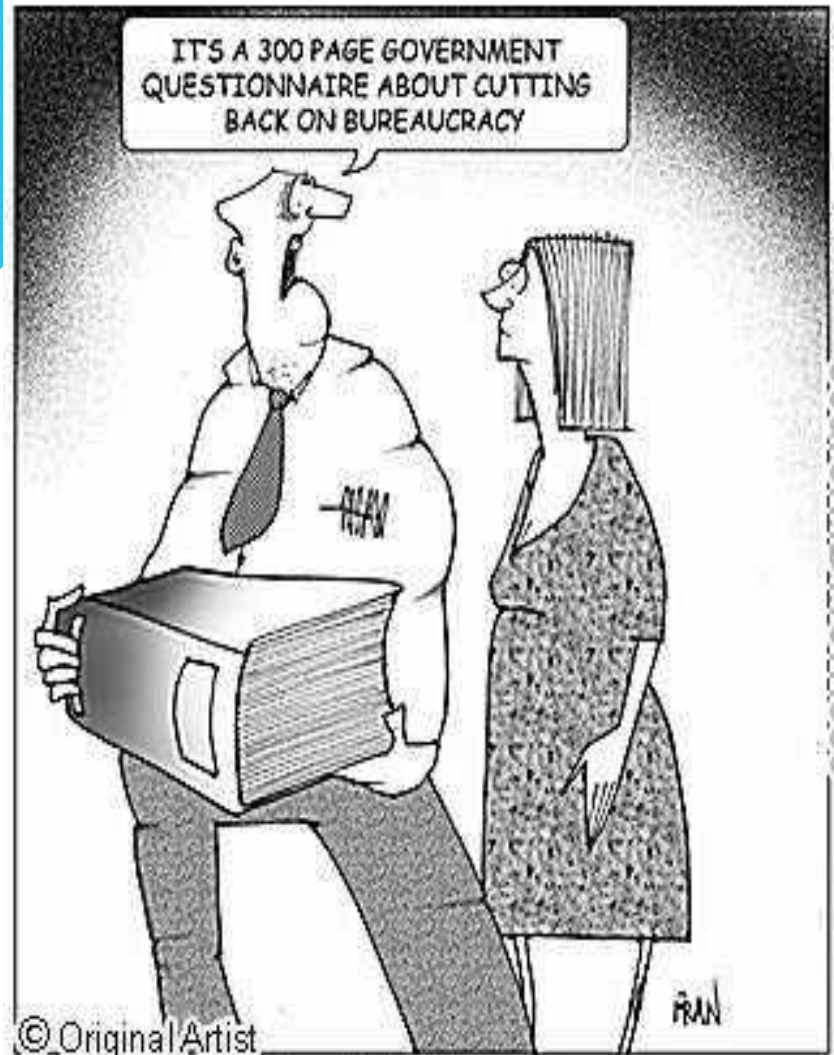
# Tutorial Three

```
graph TD; A[Tutorial Three] --> B[Questionnaire Design]; A --> C[Scales of Measurements & Types of variables];
```

Questionnaire  
Design

Scales of  
Measurements &  
Types of variables

# WHAT'S WRONG WITH THIS QUESTIONNAIRE??



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This hypothetical questionnaire is to be conducted with the general population in an area of a city that has a high percentage of lower income households.

The purpose of the survey is to evaluate the effectiveness of a media campaign, which includes radio, television, and print PSAs.

The PSAs profiled existing physical activity programs in a specific geographical area. They portrayed the programs as fun, relaxed, and informal, and contained the message that the programs listed were free or inexpensive.

The program was developed in response to an evaluation of existing physical activity programs which revealed that the average household income of participants was significantly higher than the average for the community.

The objectives of the campaign are:

1. To increase awareness of free or low-cost physical activity programs in the community.
2. To increase the use of existing physical activity programs that are free or low-cost by families and individuals with an annual household income of \$25,000.00 or less.


Hello, my name is (INSERT YOUR NAME). I am calling to ask a few questions about advertising that has recently been conducted promoting low-cost and free physical activity programs in your community. Can I interview you now?

IF YES, CONTINUE

IF NO, THANK AND TERMINATE



## CRITIQUE: INTRODUCTION:

- Too much information about the subject (Bias!)
  - Lack of:
    - Name of the organization conducting the survey
    - How long the interview will take
    - Mention that responses will be confidential and anonymous
- 

## CRITIQUE: Q1:

Q.1 What is your annual household income?

\$\_\_\_\_\_.00

- NEVER start with personal information such as income.
- Categories.



## CRITIQUE: Q2:

**Q.2** Do you feel that the physical activity programs in your community are too expensive for you to participate in?

YES 1

NO 2

- **Terminology: Use Clear and Simple.**
- **Again, Personal Information should be kept later.**



## **CRITIQUE: Q3:**

**Q.3** Recently, the local Public Health Unit ran a series of PSAs promoting existing physical activity programming in your community. The PSAs ran across all media types and were in low to moderate rotation for the past month. The content was upbeat, including a catchy soundtrack, and focused on free and low-cost activities. Do you recall seeing or hearing any PSAs of this nature?

**YES     1**

**NO       2**

## CRITIQUE: Q3:

- Terminology: Use Clear and Simple
- “*Aided awareness*” Vs. “*unaided awareness*”  
Question.

## CRITIQUE: Q4:

Q.4 Are you currently a member of a gym or fitness club, or do you participate in any regular physical activity program?

YES 1

NO 2

→ Double-barreled question



## CRITIQUE: Q5:

Q.5 Please tell me  
what regular  
physical activity you  
participate in.

---

---

→ This question  
requires a skip  
pattern



## CRITIQUE: Q6:

Q.6 What was the media source that carried the PSA that you saw or heard?

RADIO 1

TV 2

WEEKLY NEWSPAPER 3

DAILY NEWSPAPER 4

→ Breaking up related questions is confusing (Q3)

→ Terminology: Simple and Clear.

## CRITIQUE: Q7:

Q.7 How would you rate the quality of the PSA(s) that you saw or heard? How much did you like them?

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Terrible

→ Double-barreled question. Quality does not equal Liking!

→ Different scale of measurement.

## CRITIQUE: Q8:

Q.8 Would you say that the PSA that you saw increased your likelihood to participate in local physical activity programming?

YES 1

NO 2

- The terms “increase your likelihood” is not common language!
- Record the “action” in a more objective, direct manner (i.e. records of the programs themselves)

## CRITIQUE: Q9:

Q.9 Did the media coverage that you saw or heard increase your awareness of free or low-income fitness and recreation opportunities in your community?

YES 1

NO 2

- Leading question. Open ended is better in this case.
- Location of the question. Logical if closer to the other PSA questions.



## CRITIQUE: Q10:




Q.10 Please tell me your name and address so we can send you some more information about fitness and recreation opportunities in your community.

---

→ Confidentiality.

→ Hostile  
Question!  
Explain Why.

# SCALES OF MEASUREMENTS & TYPE OF VARIABLES

Measure	
Scale	
	Scale
	Ordinal
	Nominal

# Variables (Unit of Data)

```
graph TD; A[Variables<br/>(Unit of Data)] --> B[Categorical<br/>(Qualitative)]; A --> C[Quantitative]; B --> D[Nominal]; B --> E[Ordinal]; C --> F[Discrete<br/>(Counting)]; C --> G[Continuous<br/>(Measuring)];
```

Categorical  
(Qualitative)

Nominal

Ordinal

Quantitative

Discrete  
(Counting)

Continuous  
(Measuring)

# Levels of Measurement



```
graph LR; A[Levels of Measurement] --- B[Nominal]; A --- C[Ordinal]; A --- D[Interval]; A --- E[Ratio];
```

Nominal


Ordinal

Interval


Ratio

## QUESTION 1:

Name type of measurement scale for the following:

- Education status (literate/Illiterate):
  - Outcome of a newborn baby (Boy/Girl):
  - Body mass Index [ $\text{weight(kg)}/\text{Height}^2(\text{meters})$ ]:
  - Blood sugar level--Quantitative variable:
  - Cholesterol level--Quantitative variable:
  - Immunization status of the child (Yes/No):
  - Grades of Exam Result (A+,A,B+,B, etc.):
- 

## **ANSWERS Q1:**

- Education status (literate/Illiterate): Nominal scale
  - Outcome of a newborn baby (Boy/Girl): Nominal scale
  - Body mass Index: Ratio scale
  - Blood sugar level: Ratio scale
  - Cholesterol level: Ratio scale
  - Immunization status of the child (Yes/No): Nominal scale
  - Grades of Exam Result (A+,A,B+,B, etc.): Ordinal scale
- 

**QUESTION 2: A SAMPLE DATA OF A STUDY IS  
GIVEN BELOW. NAME THE **TYPE OF VARIABLE:****

<i>Pt ID</i>	<i>Age (Years)</i>	<i>Sex</i>	<i>Marital Status</i>	<i>Education</i>	<i>BMI</i>	<i>CD4 cell count</i>	<i>Viral load</i>	<i>Candi - load</i>	<i>ESR at 1 hour</i>
1	34	1	1	1	20.1	351	728000	47500	35
2	30	2	1	1	17.8	33	11300	159000	25
3	48	2	2	1	25.1	179	53900	188000	30
4	40	1	1	2	17.6	235	498000	21000	34
5	36	1	1	1	18.1	70	7360	320	19
6	25	1	2	2	17.3	86	400	10	10
7	29	2	1	1	16.9	228	750000	167000	39
8	25	1	1	2	17.3	67	83400	15	22
9	38	2	2	1	22.5	27	14300	6500	23
10	40	1	2	2	17.5	41	290000	5200	30

## ANSWERS Q2:

<i>Age (Years )</i>	<i>Sex</i>	<i>Marital Status</i>	<i>Educatio n</i>	<i>BMI</i>	<i>CD4 cell count</i>	<i>Viral load</i>	<i>Candi - load</i>	<i>ESR at 1 hour</i>
QNV	CAT G	CATG	CATG	QNV	QNV	QNV	QNV	QNV

CATG = Categorical (Qualitative)

QNV= Quantitative variable



# QUESTION 3: CLASSIFY THE FOLLOWING VARIABLES AS QUANTITATIVE (DISCRETE OR CONTINUOUS) AND QUALITATIVE (ORDINAL OR NOMINAL).

VARIABLE
White blood cells per deciliter of whole blood
Leukemia rates in geographic regions (cases per 100,000 people)
Presence of type II diabetes mellitus (yes or no)
Body weight (kilograms)
Low-density lipoprotein level (mg/dl)
Grade in course coded: A, B, C, D or F
Course credit (pass or fail)
Satisfaction: 1=very satisfied, 2= satisfied, 3= neutral, 4= unsatisfied, 5= other
Treatment group: 1= active treatment, 2 = placebo
The number of road accidents in KSA during Ramadan month

CLASSIFICATION
Quantitative variable (continuous)
Quantitative variable (discrete)
Qualitative variable (nominal)
Quantitative variable (continuous)
Quantitative variable (continuous)
Qualitative variable (ordinal)
Qualitative variable (nominal)
Qualitative variable (ordinal)
Qualitative variable (nominal)
Quantitative variable (discrete)

VARIABLE
The number of boys in a family
The length of time that a cancer patient and survives after diagnosis
The number of previous miscarriages an expectant mother had

CLASSIFICATION
Quantitative variable (discrete)
Quantitative variable (either discrete or continuous)
Quantitative variable (discrete)

THANK YOU

FOR FURTHER QUESTIONS:

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