

Questionnaire Designing

Session Objectives

1. Understand various tools of data collection
2. Describe steps in designing a questionnaire/ scale
3. List various methods of validating a questionnaire/rating scale
4. Reflect on various advantages and disadvantages of questionnaire as a tool for data collection

Reflect on your experiences with Questionnaire based Research

What are various tools of data collection?

- Questionnaire
- Scales
- Opinionnaire
- Checklists
- Inventory

I will be using these terms repeatedly..

ASSESSMENT OF DEPRESSION AMONG ADOLESCENTS

Construct

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

Anchors

Item

Content

add columns + +

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all _____
Somewhat difficult _____
Very difficult _____
Extremely difficult _____

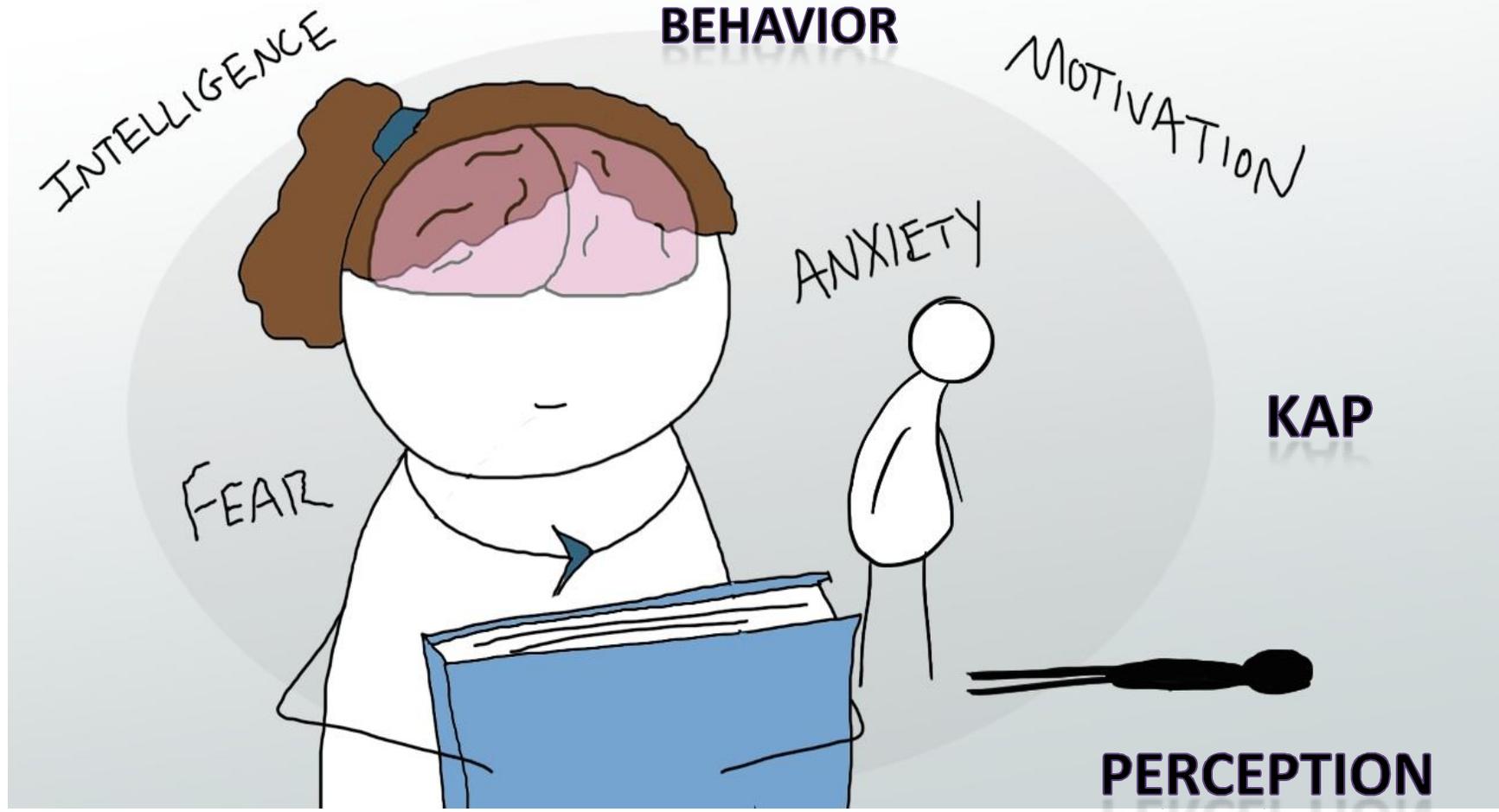
Options

Think for a while

- Is questionnaire the best method to collect information?
- Are there any ready questionnaires available?
- If yes
 - Whether it matches to your purpose of study?
 - Are they validated?
 - Used in our country or similar setting?
 - Guide for analysis available?
 - Is there need for translation?

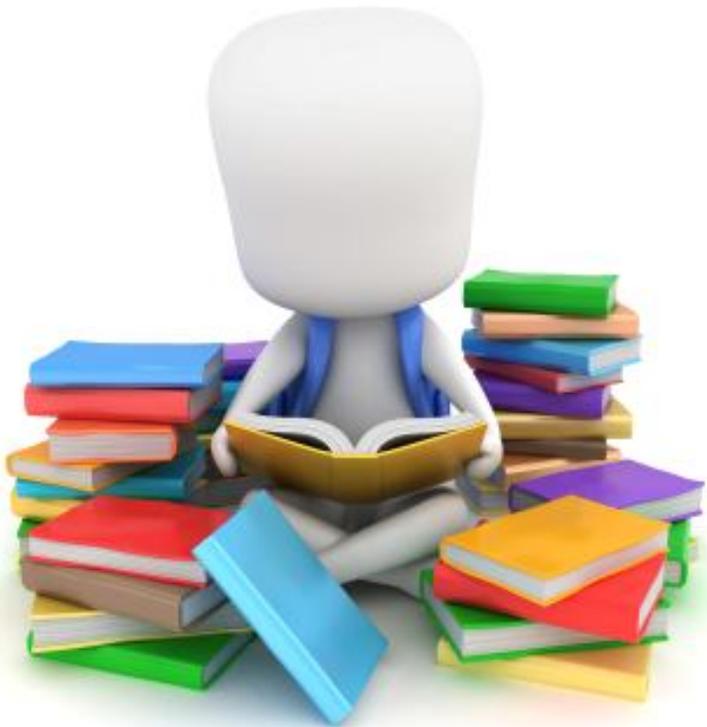
Decide on... Construct

WHAT IS A CONSTRUCT?



Steps in Designing a Questionnaire

Step 1 – Review Literature



- Clearly define construct
- Availability of questionnaires or scales
- What contents can be added?
- Framing the items

Step 2 - Conduct interviews and/or focus groups



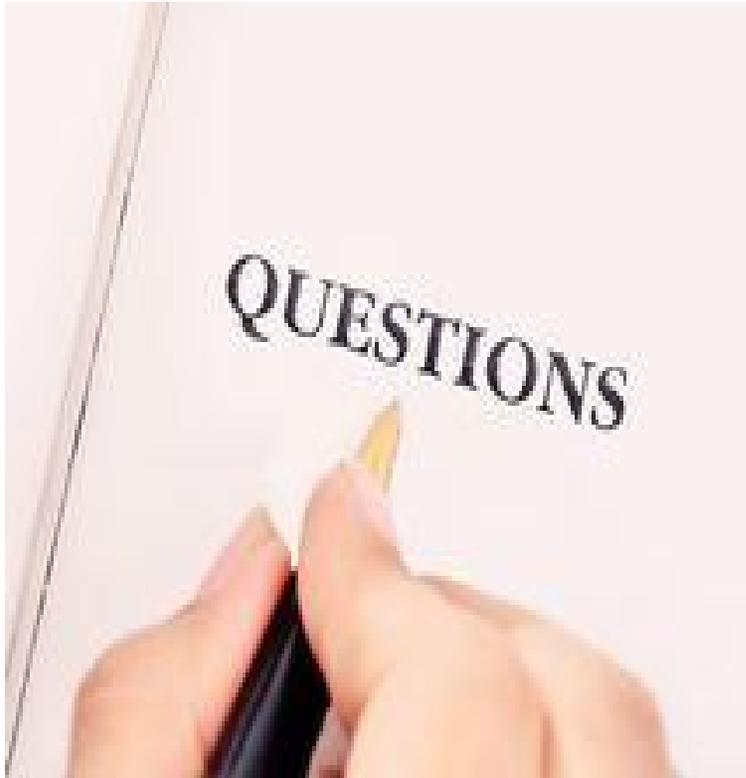
- How people perceive the construct
- Help you to identify few things which are not available in literature
- Blending with local needs/perceptions

Step 3- Synthesize the literature review and interviews/focus groups



- Put theory and reality together
- Articulating the items in language people can understand

Step 4 - Develop items



- To ensure items are clear
- Understandable
- Written in accordance with current best practices

Types of items

Structured – closed ended



“There’s never an option that reflects exactly what I want to say.”

Structured open ended

Which of the following animals are responsible for transmission of rabies

- a. Dog
- b. Cat
- c. Monkey
- d. Rat
- e. Cow
- f. Others (specify)_____

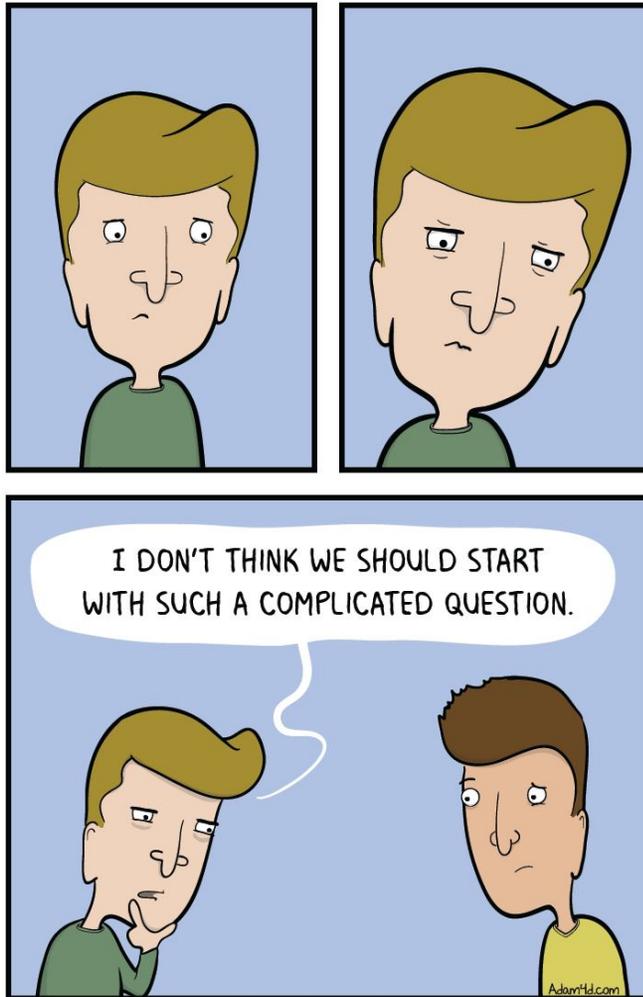
(You can tick more than one option)

-

Open ended

- List the animals responsible for transmission of rabies

Tips for item writing



- **Keep language simple and comprehending**
 - Don't use technical jargons
 - Local language is preferred
 - Take tips from FGD and interviews

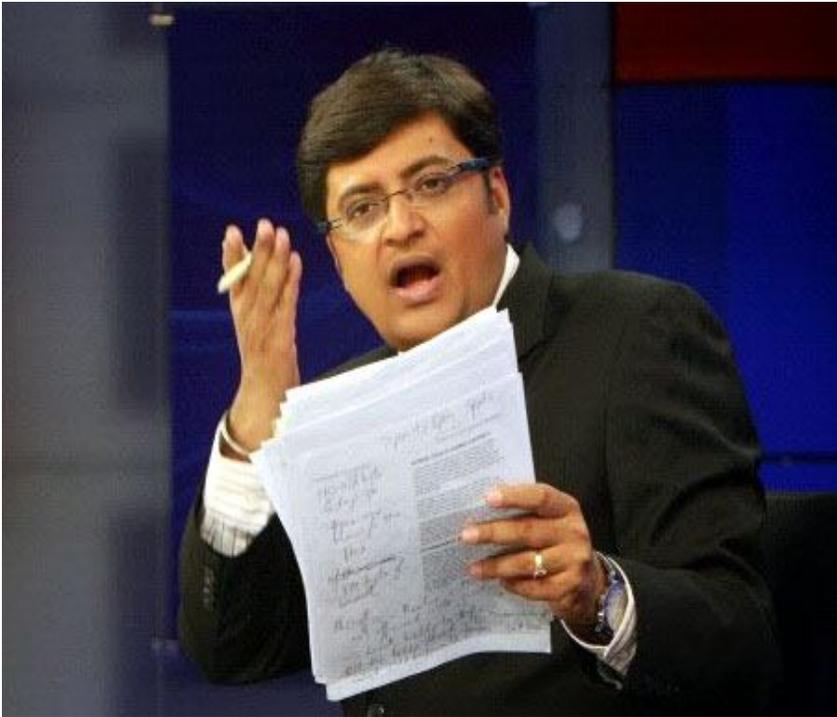
Sentences should be short and simple



- Keep it short and sweet
- Makes your questionnaire big
- Lengthy question takes away interest
- Time consuming

"AND FINALLY QUESTION FIFTY, DO YOU EVER FEEL LIKE KILLING SOMEONE?"

Ask One Question at a time



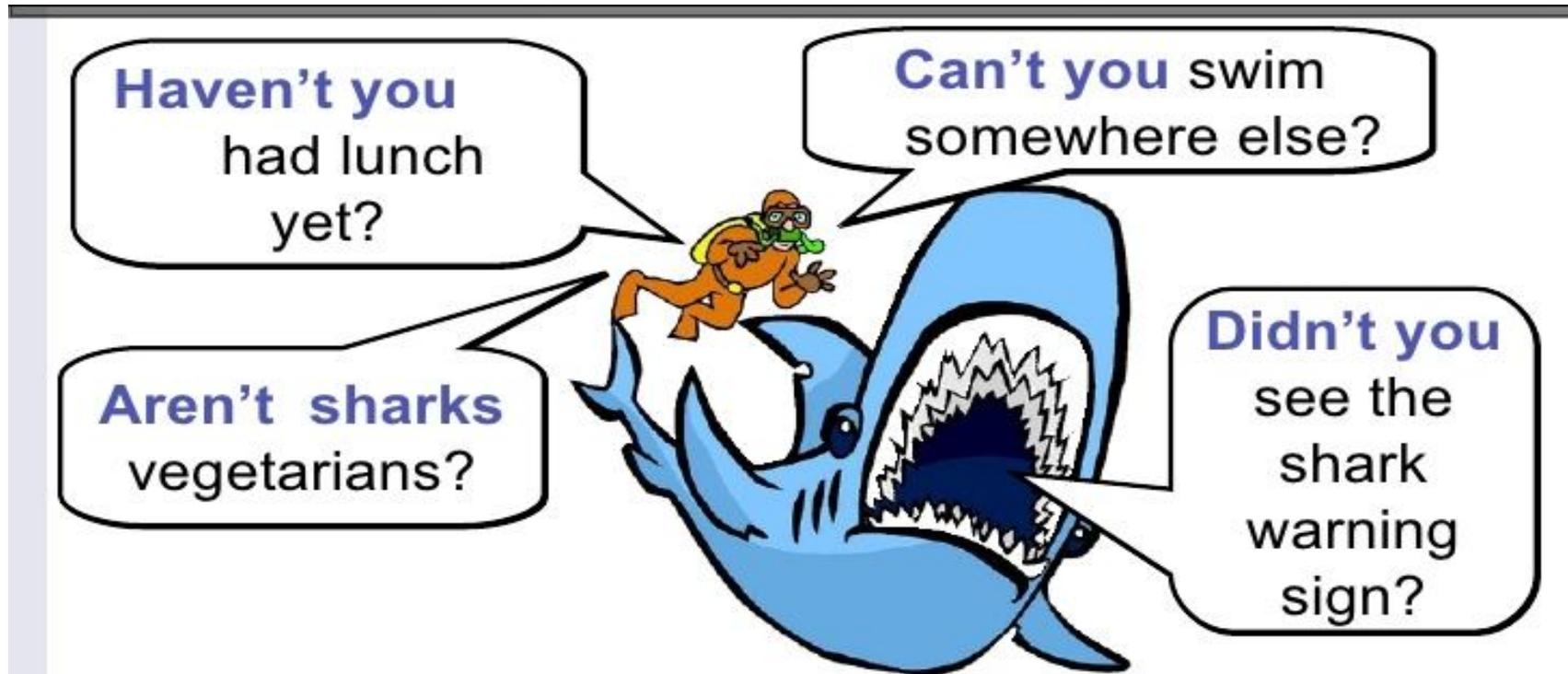
- How often do you feel anxious while reading pharmacology and pharmacy practice?
 - How often do you feel anxious while reading Pharmacology
 - How often do you feel anxious while reading Pharmacy practice?

Avoid double barreled questions



- How often you feel panicky while taking exams and answering questions in class?
- How often you feel panicky while taking exams
- How often Feel panicky while answering questions in class.

Avoid negatives



- Don't you think curriculum is the cause for your anxiety?

Avoid double negatives



- **Don't** you think syllabus is **NOT** a cause for your anxiety?

Attach a Frame to the frequencies



- How often you were not able to sleep due to anxiety associated with studies?
- How often you were not able to sleep due to anxiety associated with studies in last fortnight.

Step 5 - Conduct expert validation



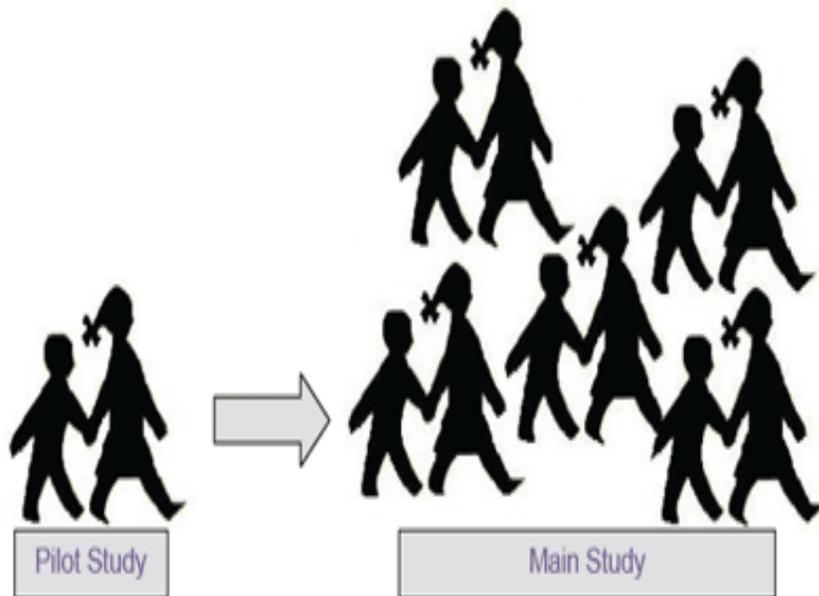
- To assess how clear and relevant the items are with respect to the construct of interest

Step 6 - Conduct cognitive interviews



- Are people understanding the items?
- Modify accordingly
- Five to Ten members can be interviewed

Step 7 - Pilot test



- Last chance for changes
- Assess validity
- Reliability
- Variance

Types of Questionnaires

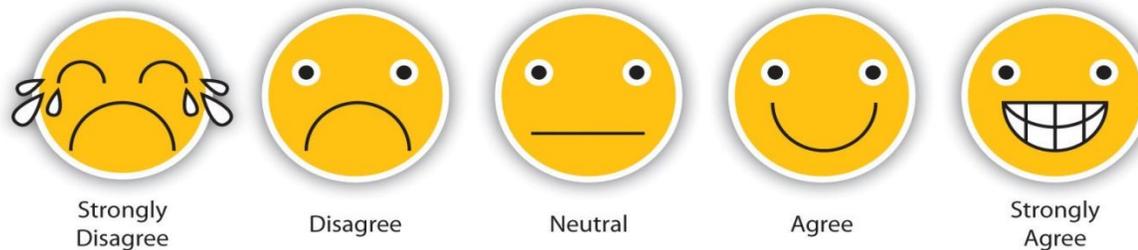
- **Structured** – All the items are closed ended
- **Unstructured** – All open ended responses
- **Semi structured** – Mix of open ended and closed ended items
 - With additional space for expressing the views of participant

Types of Rating scales

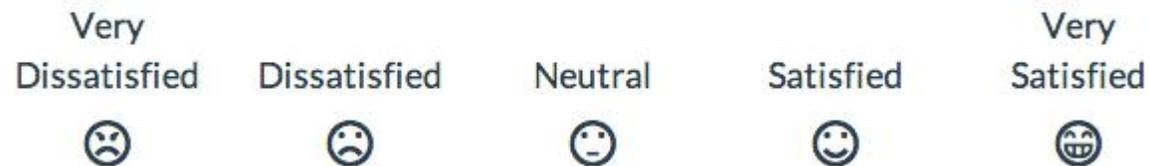
- Likert scale
- Guttman scale
- Thurstone scale
- Semantic differential scale

Likert scale

- Odd or even point rating scale (three, four, five)
- Odd points are preferred



How did you feel about your most recent experience?



PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____

DATE: _____

Over the *last 2 weeks*, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all <i>0</i>	Several days <i>1</i>	More than half the days <i>2</i>	Nearly every day <i>3</i>
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3

<i>(Please circle the number)</i>				
Not at all	A little	A moderate amount	Very much	An extreme amount

1 2 3 4 5

5. To what extent do you feel your life to be meaningful?

1. It is the duty of doctors to keep people alive for as long as possible.

Strongly Agree

Agree

Agree somewhat

Undecided

Disagree somewhat

Disagree

Strongly disagree

So tell me, what is
your pain on a scale
of 1 - 10?



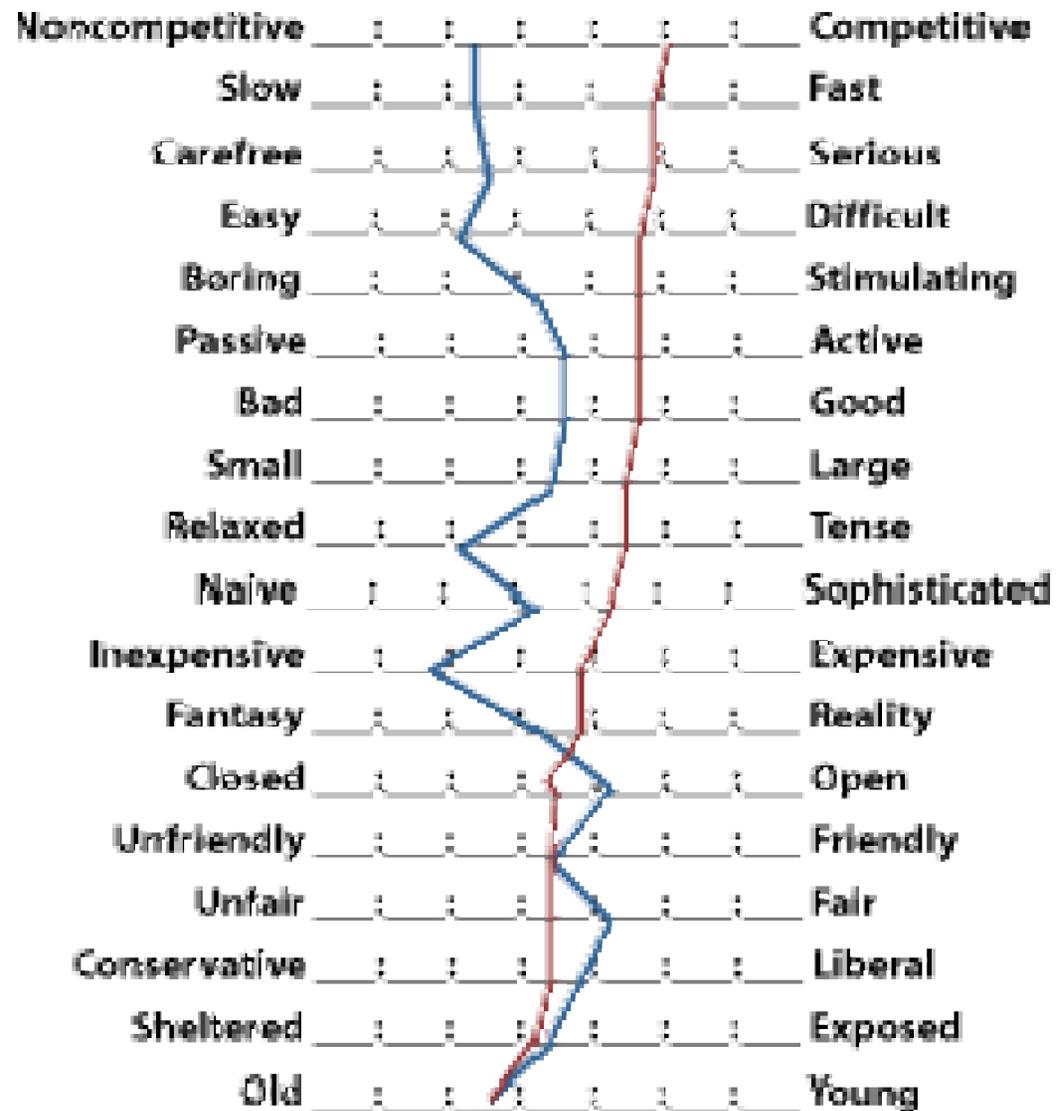
Advantages

- Easy during self administered survey
- Saves lots of time
- Some behavioral and qualitative aspects are made measurable

Disadvantages

- Not suitable for interview technique
- Lacks uniformity in understanding and responding to the context
- More the number of rating questions, learners tend to follow a marking pattern (not realistic one)

Semantic Differential Scale



Guttman scale

Please answer YES or NO to the following questions	YES	NO
I like playing video games.	[]	[]
I like pizza.	[]	[]
I spend a lot of time gaming.	[]	[]
I eat out frequently.	[]	[]
I sometimes go without eating or sleep so I can finish a video game.	[]	[]

Thurstone scale

TABLE 11-7 Example of a Thurstone Scale

<i>Scale Value</i>	<i>Item</i>
1.2	I believe the church is a powerful agency for promoting both individual and social righteousness.
2.2	I like to go to church for I get something worthwhile to think about and it keeps my mind filled with right thoughts.
3.3	I enjoy my church because there is a spirit of friendliness there.
4.5	I believe in what the church teaches but with mental reservations.
6.7	I believe in sincerity and goodness without any church ceremonies.
7.5	I think too much money is being spent on the church for the benefit that is being derived.
9.2	I think the church seeks to impose a lot of worn-out dogmas and medieval superstitions.
10.4	The church represents shallowness, hypocrisy, and prejudice.
11.0	I think the church is a parasite on society.

Note: On the actual questionnaire, the items would appear in random order and the scale values would not be shown.

Points to remember in rating scales

- Avoid multiple rating points in the same scale
- Do not put both anchors and numbers together – distracts the respondent
- Keep it even points
- Be careful about negative/unfavorable statements – reverse coding is required

How a questionnaire should look like?

- Name of the organization
- Name of Principal Investigator with his affiliation and contact details
- Brief description of study
- General instruction to the participant
- Relevant socio-demographic details of the participant
- Items – legible, clear, formatted
- Thank you message
- Details of who has surveyed the participant

PURCHASE REQUISITION QUESTIONNAIRE

Louis Agencies, Texas, USA

Title

Organization

PI

Pat Kline, Vice President, Finance, has asked us to investigate the purchase requisition process to see if it can be improved. Your input concerning this requisition process will be very valuable. We would greatly appreciate it if you could complete the following questionnaire and return it by March 10 to Dana Juarez in information technology. If you have any questions, please call Dana at x2561

Brief description of study

Instructions

A. YOUR OBSERVATIONS

Please answer each question by checking one box.

- How many purchase requisitions did you process in the past five working days? _____
- What percentage of your time is spent processing requisitions?
 under 20% 60-79%
 21-39% 80% or more
 40-59%
- Do you believe too many errors exist on requisitions?
 yes
 no
- Out of every 100 requisitions you process, how many contain errors?
 fewer than 5 20 to 29
 5 to 9 30 to 39
 10 to 14 40 to 49
 15 to 19 50 or more
- What errors do you see most often on requisitions? (Place a 1 next to the most common error, place a 2 next to the second, etc.)
 incorrect charge number missing authorization
 missing charge information other (please explain) _____
 arithmetic errors
 incorrect discount percent used

Contact Details

Body

Open space

B. YOUR SUGGESTIONS

Please be specific, and give examples if possible.

- If the currently used purchase requisition form were to be redesigned, what changes to the form would you recommend?

Thanks for your valuable responses

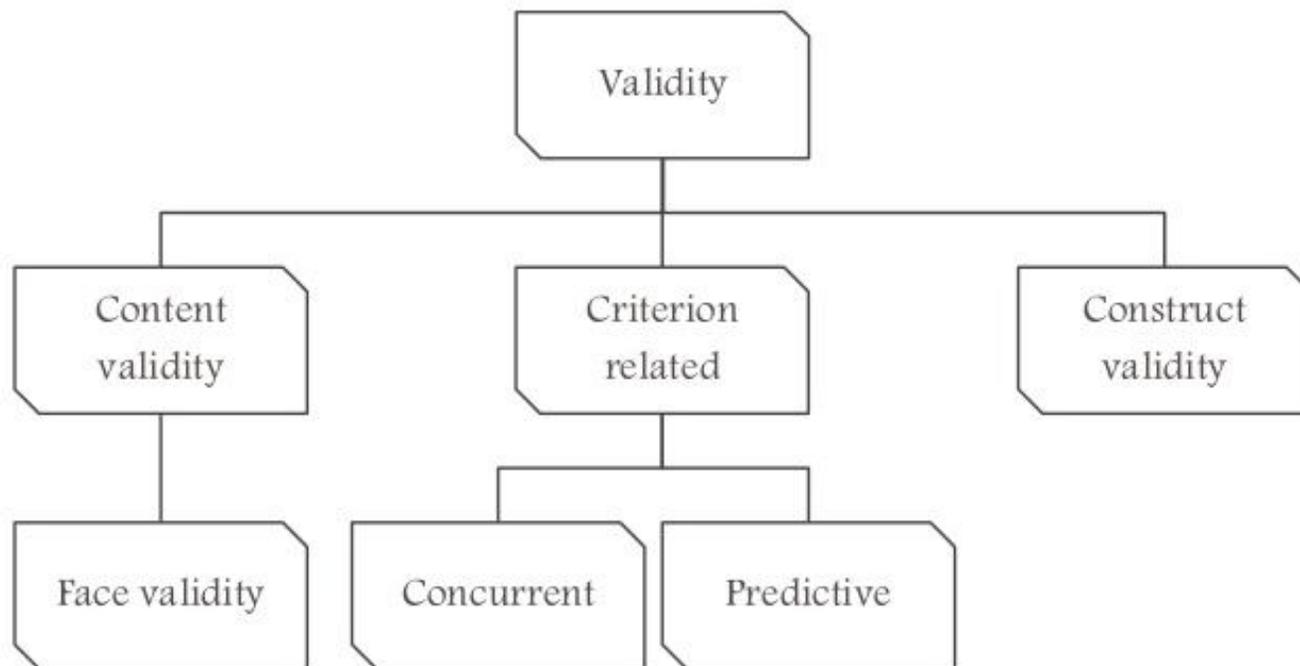
Thank you

General Info

- Would you be interested in meeting with an information technology representative to discuss your ideas further? If so, please complete the following information:
 Name _____ Department _____
 Telephone _____ E-mail address _____

Validating a Questionnaire / scale

Types of validity



Content Validity

- To what extent the items in the questionnaire are relevant
 - Can be applied to individual items
 - To overall scale
- Simple way to achieve is by face validity
 - Show your questionnaire to the experts (6-10) and ask their opinion on the contents

Exercise

- Look at item 1 – Rate it in this scale
 - Highly relevant
 - Relevant
 - No Comments
 - Irrelevant
 - Highly irrelevant
- Look at entire questionnaire and rate it in the same way..

- I- CVI
- S CVI

Criterion validity

- It is the extent to which the scores from the questionnaire show similarity with established criterion (using another instrument). There are two types of criterion based validity.
- **Concurrent validity:** The extent of relationship between the scores obtained by the questionnaire with those obtained through gold standard instrument measuring the same construct
- **Predictive validity:** The extent to which the instrument forecasts the ultimate outcomes

Construct validity

- To what extent all the items together measure the construct under study

Linguistic validity

- Translate to local language
- Back translate to original language
- Test it among the subjects
- The responses should match
 - Kappa statistic is used to assess the level of agreement

Reliability

- Also known as consistency
 - Inter-rater reliability
 - Test Re test reliability
 - Internal consistency
 - Split Half
 - Kappa statistic
 - Correlation
 - Chronbach alfa
 - Correlation

Advantages of Questionnaires

- Easy to administer
- Collect information from large number of subjects
- Less time consuming
- Provide valuable results in short span of time
- When data has been quantified, it can be used to compare and contrast other research and may be used to measure change

Disadvantages

- Designing is tedious process
- Validity related issues
- Lack of uniformity across scales
- inadequate to understand some forms of information - i.e. changes of emotions, behaviour, feelings etc.
- How truthful a respondent is
- How much thought a respondent has put in
- The respondent may be forgetful or not thinking within the full context of the situation
- Read questions differently
- Researcher imposition

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Thank You