



Chapter 4

Measurement Scales and Questionnaires

Business Research Methods

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CHAPTER 4. Measurement Scales and Questionnaires

“It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts”

SIR ARTHUR CONAN DOYLE



Conan Doyle is most famous as the inventor of Sherlock Holmes, but he had a varied career as a writer, journalist and public figure.

CHAPTER 4. Measurement Scales and Questionnaires

CONTENTS

- THE MEASUREMENT SCALES
- SCALING TECHNIQUES
- THE QUESTIONNAIRE
- BASIC RULES FOR QUESTIONNAIRE ELABORATION

CHAPTER 4. Measurement Scales and Questionnaires

CHAPTER OBJECTIVES

After reading this chapter, you should be able to:

- ☆ Understand the difference between the different types of *measurement scales*.
- ☆ Understand the possible *scaling techniques*
- ☆ Understand the concepts of *reliability and validity* of questionnaires
- ☆ Know basic rules on *how to elaborate a questionnaire*.

• What is “Measurement”?:

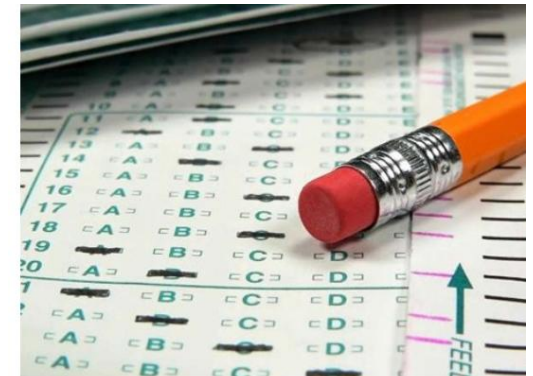
-Assigning numbers or other symbols to characteristics or attributes of objects according to pre-specified rules.

-We do not measure the object, but its characteristics or attributes.

-E.g. customer satisfaction

-The properties of the attribute determine which levels of measurement are possible.

E.g. Gender



- What are “Scales of measurement”?:

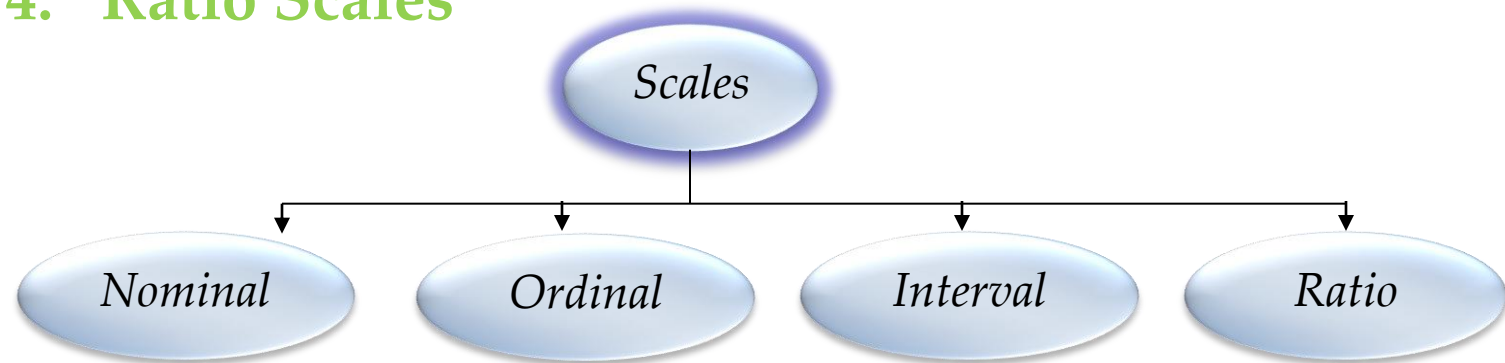
- Scaling implies creating a continuum on which the objects that are being measured are placed.

E.g. customer satisfaction

1. Very satisfied 2. Satisfied 3. Very Unsatisfied

- Four main types of measurement scales:

1. Nominal Scales
2. Ordinal Scales
3. Interval Scales
4. Ratio Scales



Important: You must be aware of what kind of statistical analysis is possible with each scale type

1. Nominal Scales



- Numbers are assigned arbitrarily (with no order) to categories or individuals...
- Strict one to one correspondence between the numbers and the objects
- Used for** : identification or/and classification
- Identification: Typically used for identifying respondents, brands, objects... E.g. A person's ID number
- Classification: E.g. 1 to man, 2 to women
- Only a limited **statistics** possible (frequency counts)
- There is no ranking

2. Ordinal Scales

Before I go to bed, I prefer

<input type="checkbox"/>	a warm glass of milk.
<input type="checkbox"/>	someone to rub my feet.
<input type="checkbox"/>	a warm blanket.
<input type="checkbox"/>	a bed.

- Ranking scale: numbers are assigned to objects on the basis of some order and represent a relative standing or different position in that order.
E.g. “greater than”, “less than” judgments.
- It indicates the relative position (more or less of an attribute) not the magnitude (how much more/less)
E.g. Rank your favorite soft drink
- Typically used to measure opinions, perceptions...
- Statistics**: allow for example centiles, quartile, median, rank-order correlations...

3. Interval Scales



Age.....

Sample A

Please rate your taste perceptions by answering the following questions:

1) Using a scale on 1-7 (1= Very Weak 7 = Very Strong) Please rate the strength of each of the following tastes:

a) Sweetness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
b) Bitterness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
c) Saltiness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
d) Sourness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
e) "Chocolateyness"	'Very weak'	1	2	3	4	5	6	7	'Very Strong'

Sample B

Please rate your taste perceptions by answering the following questions:

2) Using a scale on 1-7 (1= Very Weak 7 = Very Strong) Please rate the strength of each of the following tastes:

a) Sweetness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
b) Bitterness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
c) saltiness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
d) Sourness	'Very weak'	1	2	3	4	5	6	7	'Very Strong'
e) "Chocolateyness"	'Very weak'	1	2	3	4	5	6	7	'Very Strong'

3) Using a scale on 1-7 (1= Identical 7 = Very Strong) Please rate the similarity in taste between sample A and B.

a) Similarity in taste	'Identical'	1	2	3	4	5	6	7	'Totally Different'
------------------------	-------------	---	---	---	---	---	---	---	---------------------

Thank you for your time, please collect your raffle ticket. Debriefing will be from 13:15 - 13:25 on Friday 26th February, in the School Hall. The prize raffle will be drawn at the end of a full debrief

3. Interval Scales

- Numerical equal distances in the scale represent equal distances in the attribute or characteristics being measured.

E.g. consumer attitudes, preference...

- Classify, assign values or scores, and rank

- But: we cannot compare the absolute magnitude of numbers because the zero point is established arbitrarily. E.g. Colgate as “2” and as “4” could not be compared.

- Statistics** include: mean, standard deviation, correlations...



4. Ratio Scales

-Have an absolute zero: allows comparisons of absolute magnitude of the numbers.

E.g. age (in years), height (in cms), weight (in kgs), money (in €)...

-It possesses all properties of the nominal, ordinal and interval and an absolute zero point.

-Therefore: we can identify, classify, rank, and compare intervals or differences. (4 is twice as much as 2).

-**Statistics:** all statistical techniques can be applied and therefore ratio scales should be used whenever possible.

• Four main types of measurement scales:



Nominal Scale

Which of the following drinks do you like? (Please check all that apply)

_____Coke _____Pepsi _____Fanta _____Seven-up _____Acuarius



Ordinal Scale

Please rank the following drinks according to your likings, being 1 the most preferred drink and 5 the least preferred one.

_____Coke _____Pepsi _____Fanta _____Seven-up _____Acuarius



Interval Scale

Please in your opinion, indicate your level of liking for each of the following drinks (1=a lot; 5=nothing)

Coke	1	2	3	4	5
Pepsi	1	2	3	4	5
Fanta1	1	2	3	4	5
Seven-up	1	2	3	4	5
Acuarius	1	2	3	4	5

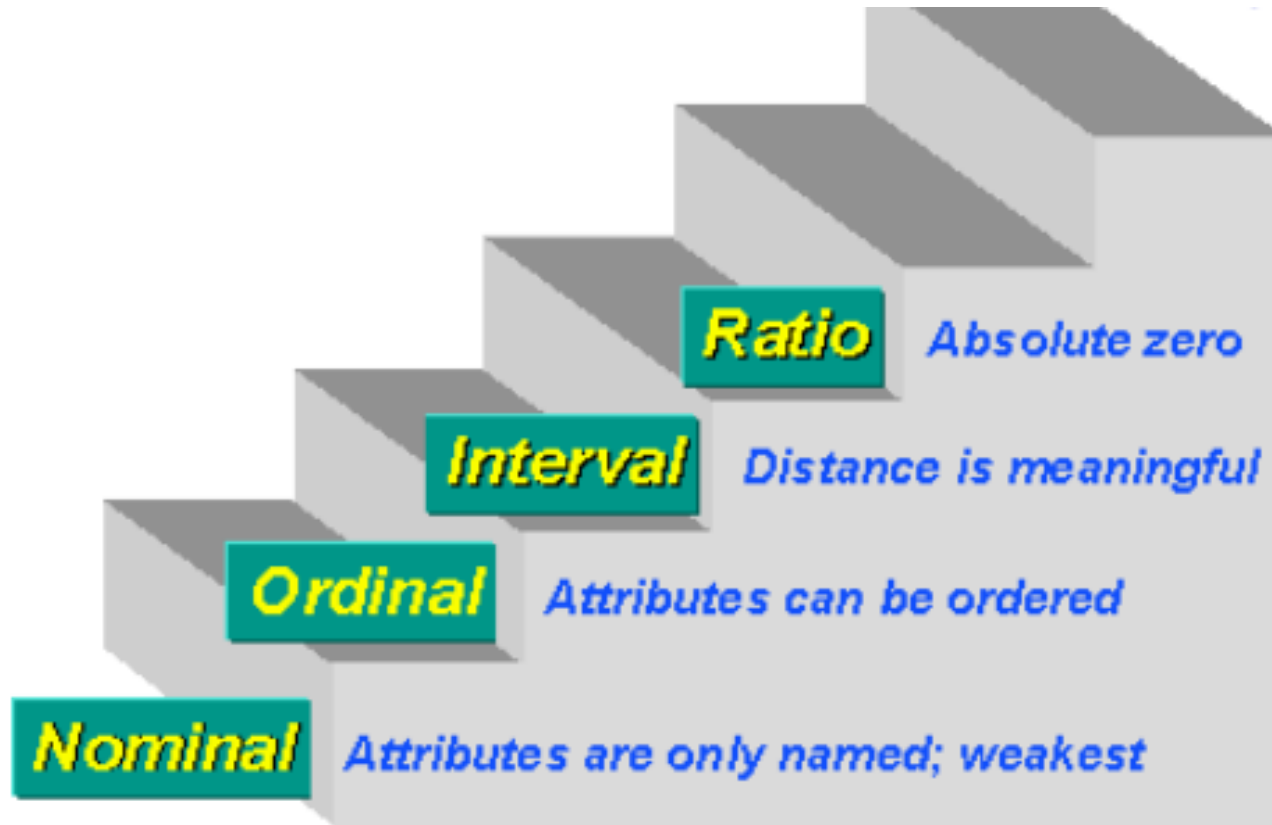


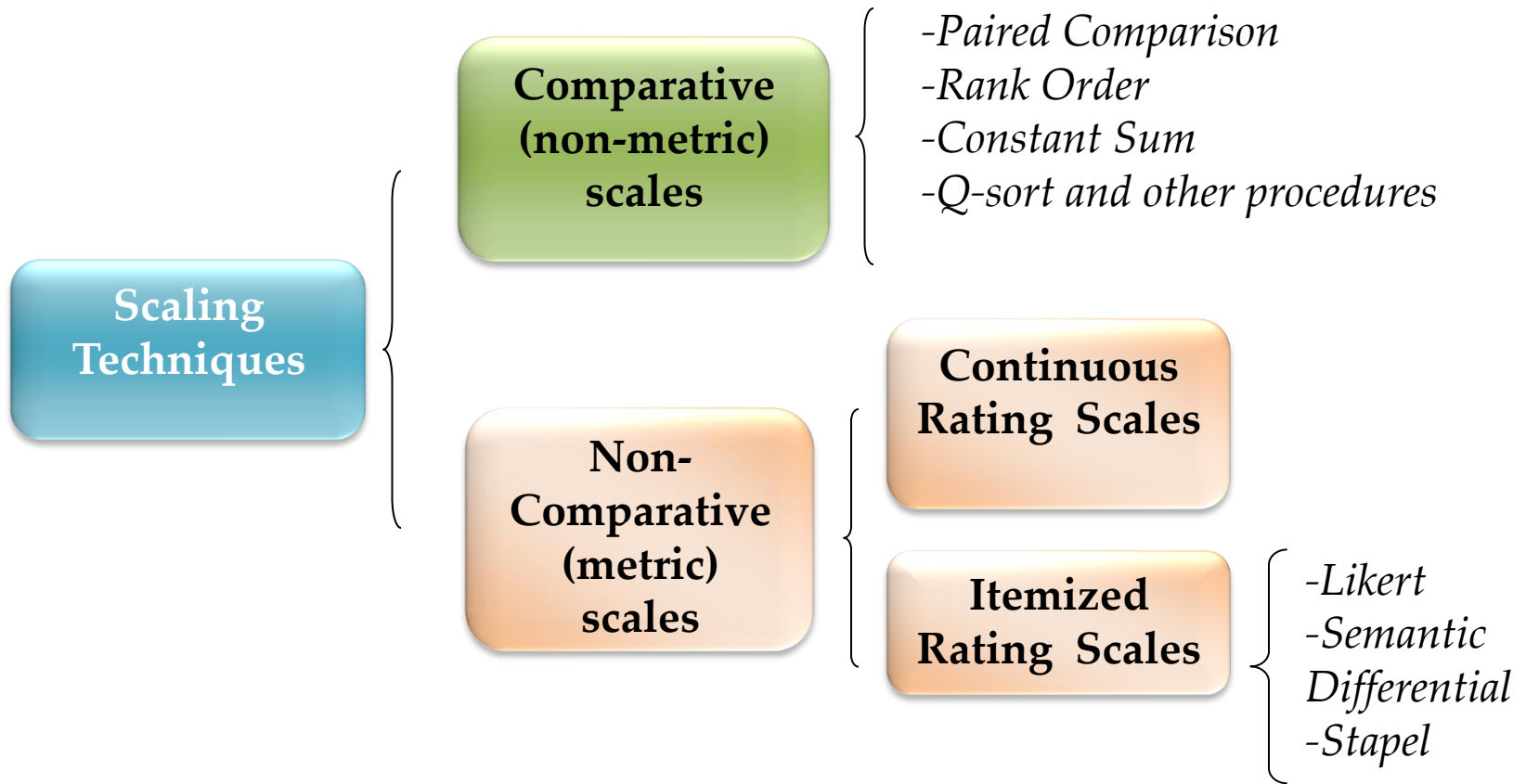
Ratio Scale

In the last month, how many 330ml cans of the following drinks have you consumed?

_____Coke _____Pepsi _____Fanta _____Seven-up _____Acuarius

MEASUREMENT SCALES

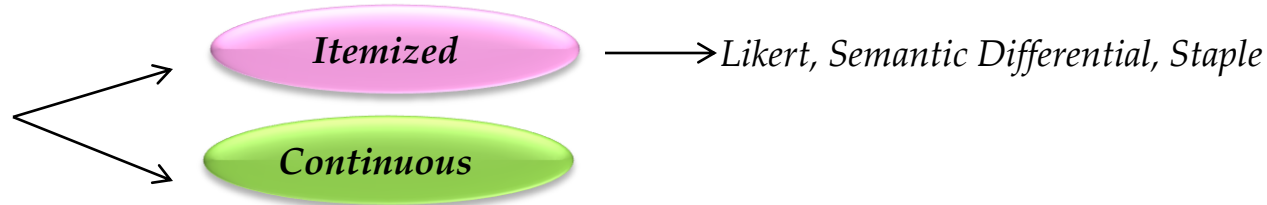




Comparative (non-metric) Scaling Techniques

Comparative Scales		(non-metric scales)		
Types	Description	Example	Data obtained	Advisable when
Paired comparison	A respondent is presented with 2 objects and is asked to select one on the basis of a given criterion	E.g. Likes Signal more than Colgate	Ordinal	The objects are physical products
Rank order	Respondents are presented with several objects simultaneously and asked to rank them on the basis of a given criterion	E.g. Brands of soft drinks according to overall preference	Ordinal	Measuring preferences for brands and attributes
Constant sum	Consumers allocate a constant sum of units (points, Euros...) among a set of stimulus objects on the basis of a given criterion	E.g. Please allocate 100 points in total to the following attributes of a hotel (cleanness, comfort, light, price) so that the points reflect the importance of the attribute for you.	Ordinal. (Sometimes treated as metric but with lack of generalizability)	Measuring preferences for attributes
Q-sort	Uses rank order procedures to sort objects based on similarity with respect to a given criterion.	E.g. Assign 60 objects in two different piles according to weight.		Discriminating among a large number of objects quickly

Non comparative (metric) scaling techniques



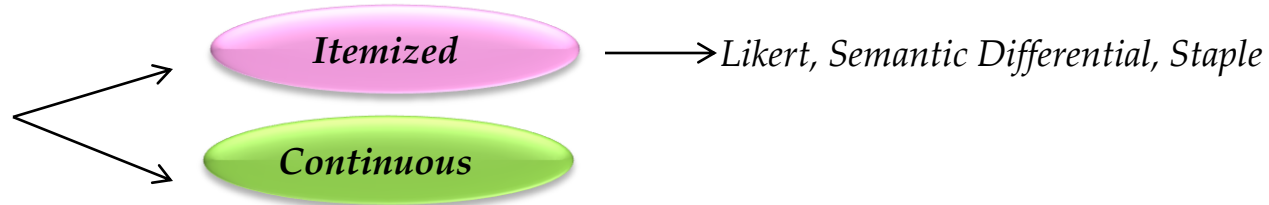
Continuous Scales

-Respondents rate objects placing a mark at the appropriate position on a line that goes from one extreme of the criterion to the other.

E.g. How would you rate Selfridges as a department store?

Probably the worst.....|.....Probably the best
0 10 20 30 40 50 60 70 80 90 100

Non comparative (metric) scaling techniques



Itemized rating scales (graphic rating)

-Scales have a number of brief descriptors associated with each category.

Itemized rating scales (graphic rating)

Likert Scale (or summated-rating scale)

- Various degrees of agreement are assigned scale values.
- A total score for each respondent can be calculated by averaging the scores across items.
- Advantages: easy to construct and administer, easy to understand, suitable for mail, telephone or personal interview.
- Main disadvantage: it takes longer to respond than other scales.

Please, indicate whether you agree or disagree with the following sentences, being 1 “strongly disagree” and 5 “strongly agree”.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
• This hotel is comfortable	1	2	3	4	5
• This hotel is clean	1	2	3	4	5
• This hotel has a convenient location	1	2	3	4	5
1. This hotel offers a good food service	1	2	3	4	5

Itemized rating scales (graphic rating)

Semantic Differential Scale

- Rating scale with end points associated with bipolar words or phrases.
- A total score for each respondent can be calculated by averaging the scores.
- Advantages: flexible and easy to use, and virtual presentation
- Main disadvantage: it takes longer to respond than other scales, not good for telephone.

Please, mark (X) the blank that best indicates how accurately one or the other adjective or phrase describes the characteristics of this hotel.

- | | | |
|-----------------------|---|------------------|
| • Comfortable | : _ : X : X : _ : _ : _ : _ : | Uncomfortable |
| • Clean | : _ : X : X : _ : _ : _ : _ : | Dirty |
| • Convenient location | : _ : X : X : _ : _ : _ : _ : | Unconvenient |
| • Good food service | : _ : X : X : _ : _ : _ : _ : | Bad food service |

X hotel A; **X** hotel B

Itemized rating scales (graphic rating)

Staple scale

- Not very much used.
- Similar to semantic differential
- Main disadvantage: maybe difficult to understand by respondents.

Please, evaluate how accurately each word or phrase best describes the characteristics of this hotel. You should select and circle a negative number for phrases you do not think describe the hotel accurately, and a positive number for phrases you think describe the hotel accurately. The more accurately you think the phrases are, the larger the positive number you should choose.

+5	+5	+5	+5
+4	+4	+4	+4
+3	+3	+3	+3
+2	+2	+2	+2
+1	+1	+1	+1
Comfortable	Clean	Convenient location	Good food service
-1	-1	-1	-1
-2	-2	-2	-2
-3	-3	-3	-3
-4	-4	-4	-4
-5	-5	-5	-5

Other considerations in designing Itemized Rating Scales

1. Number of Scale positions
2. Balanced or unbalanced scales
3. Odd or even number of categories
4. Forced or non-forced choice
5. Verbal description
6. Physical form of the scale

1. Number of Scale positions

How many response categories? (5 minimum)

Things to take into account:

- The nature of the object itself.
- The mode of data collection.
- How the data will be analyzed and used: the size of the correlation coefficient is influenced by the number of scale categories.

2. Balanced or unbalanced scales

Equal number of positive and negative categories?

Unbalanced scales: response categories unequal in number.

Balanced scales: response categories equal in number.

(If the distribution of responses is likely to be skewed, unbalanced scales may be used to reduce the effect)

3. Odd or even number of categories

Middle position is neutral or impartial

Even number: forces the response

4. Forced or non-forced choice

Forced: a “no opinion” item eg. “do not know” or “not applicable” is not provided.

When? Some of the respondents may not have knowledge about the issue.

Risk: quick way to get through the questionnaire/ may distort results

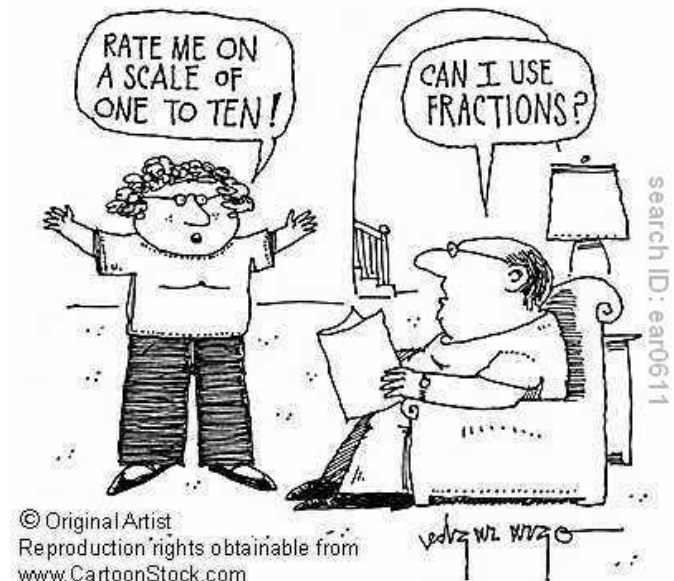
5. Verbal description

Scale categories may have:

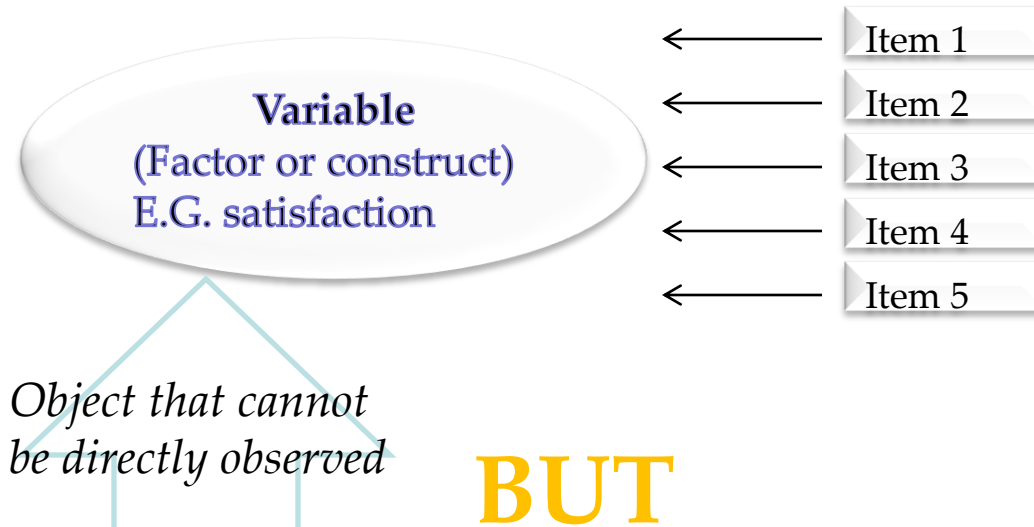
- verbal, numerical or even pictorial descriptions.
- descriptors only at the extremes or on all part
- Strong or weak anchors (e.g. extremely agree). Risk: strong anchors may incline respondents to avoid the far ends and produce peak distributions but weak anchors may produce flat distributions.

6. Physical form of the scale

Vertical, horizontal, boxes, lines, continuums, happy faces...



Multi-item rating scales:



If it cannot be directly observed:

How can we be sure that we are measuring the variable correctly?

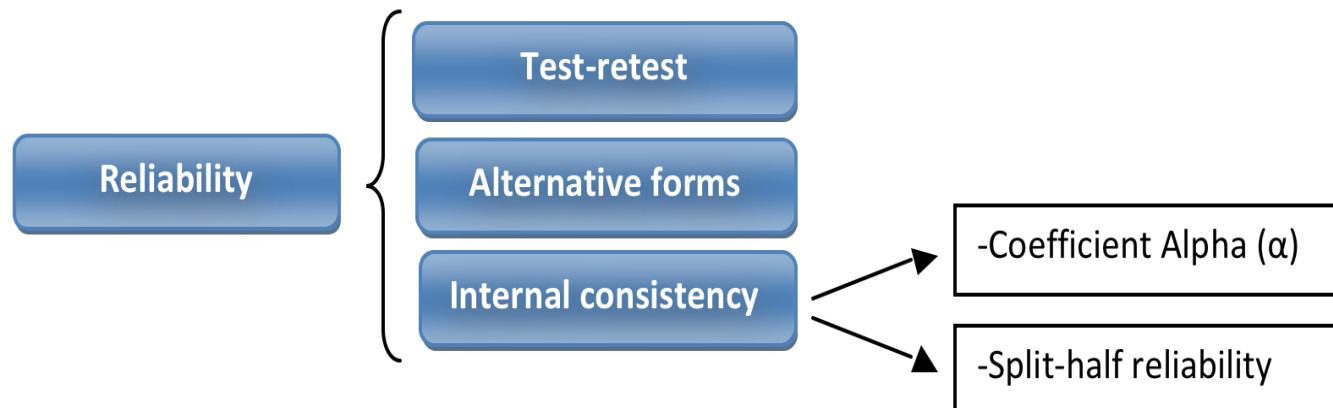
Statistics:

- Reliability** (α Cronbach, internal consistency, test-retest...)
- Validity** (Content, Construct, Nomological...)

Reliability:

- Consistency
- Ability to obtain similar scores for the same object, trait, ... across time, evaluators,...
- ”Extent to which measures are free from random error”
- **α Cronbach:** 0-1 (cut-off value of 0.7).

. Ways to measure reliability



Reliability:

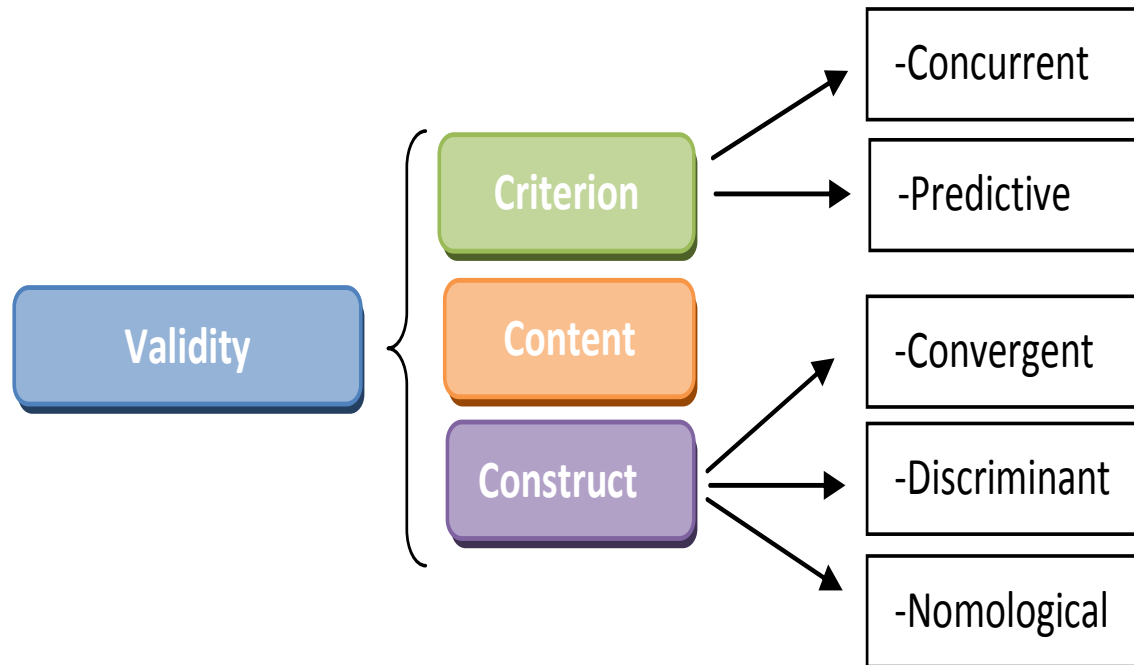
- "Extent to which measures are free from random error"
- **α Cronbach:** 0-1 (cut-off value of 0.7).

Alfa de Cronbach	N. de ítems	Factor 1	KMO	Prueba de Barlett
0,936	4	% varianza: 84,175	0,825	χ^2 aprox. 671,517 gl. 6 Sig. ,000
ESCALA INICIAL PROPUESTA DE "SATISFACCIÓN"				FACTOR 1: Comunalidades
S1. Nuestra elección de trabajar con este grupo de investigación fue una decisión acertada.				0,769
S2. Estamos satisfechos con las capacidades de este grupo de investigación.				0,893
S3. En general, la relación con ellos ha sido satisfactoria.				0,838
S4. Creemos que hicimos lo correcto cuando decidimos trabajar con este grupo de investigación.				0,867

A Scale has Validity when:

-It accurately assesses what it was intended to assess.

Types of validity:



Validity:

★ Content validity

- Subjective evaluation.
- Do scale items cover the entire domain of the construct?
- Review theoretical backgrounds to check the construct or variable includes all dimensions.

★ Criterion validity

- Relationships with other constructs that should theoretically exist are evident.
- Concurrent:** data on the scale and on the criterion are taken at the same time.
- Predictive:** data on the scale is collected at one time, and data on the criterion variables is collected at future times. (e.g. Attitude towards soft drinks)

Validity:

★ Construct validity

- Convergent validity

Extent to which the scale correlates positively with other measures of the same construct.

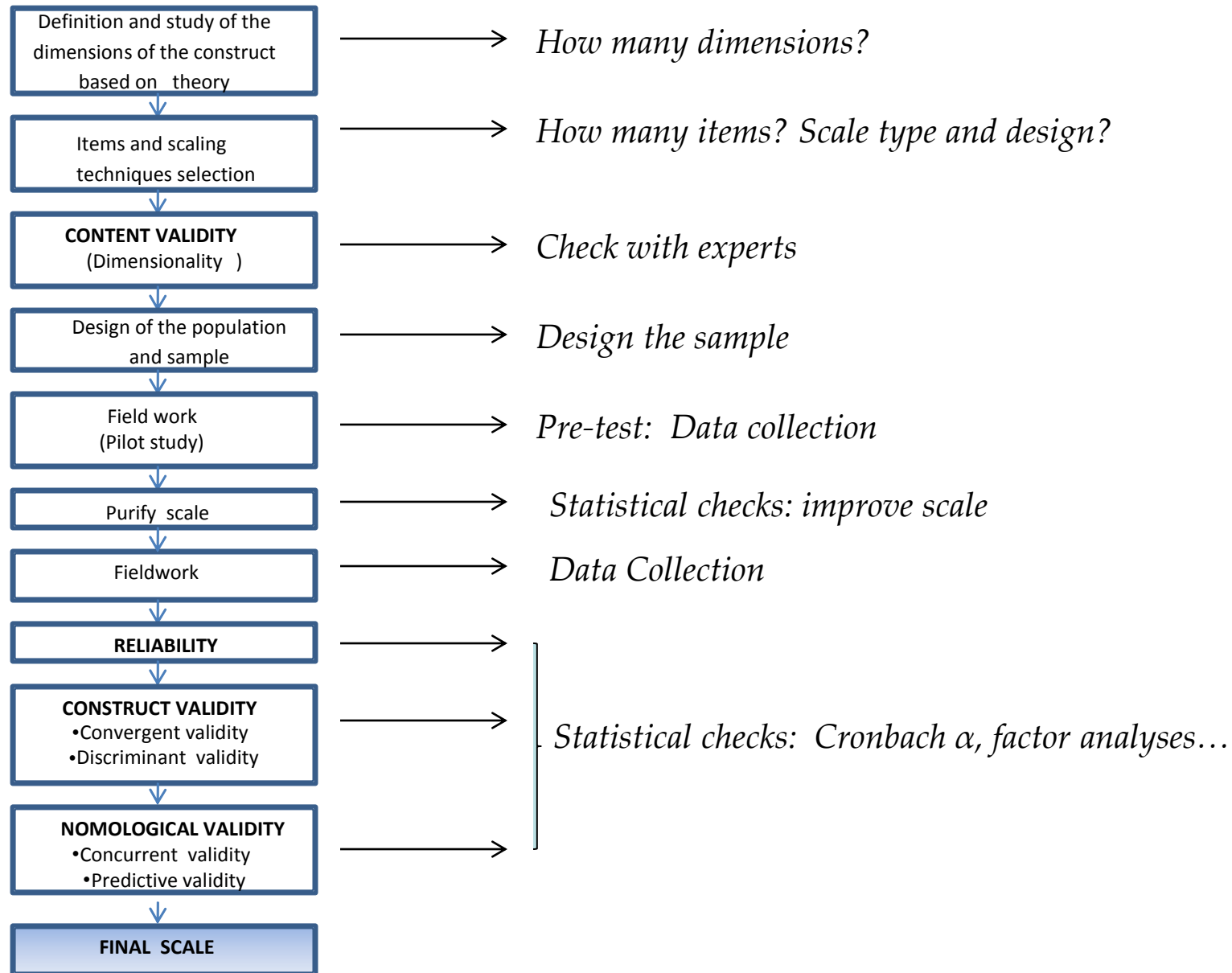
- Discriminant validity

Extent to which the scale does not correlate with other construct from which it is not supposed to correlate.

- Nomological validity

Correlations between constructs as predicted by the theory

SCALING TECHNIQUES



CHAPTER 4. Measurement Scales and Questionnaires

CONTENTS

- *THE MEASUREMENT SCALES*
- *SCALING TECHNIQUES*
- ***THE QUESTIONNAIRE***
- *BASIC RULES FOR QUESTIONNAIRE ELABORATION*

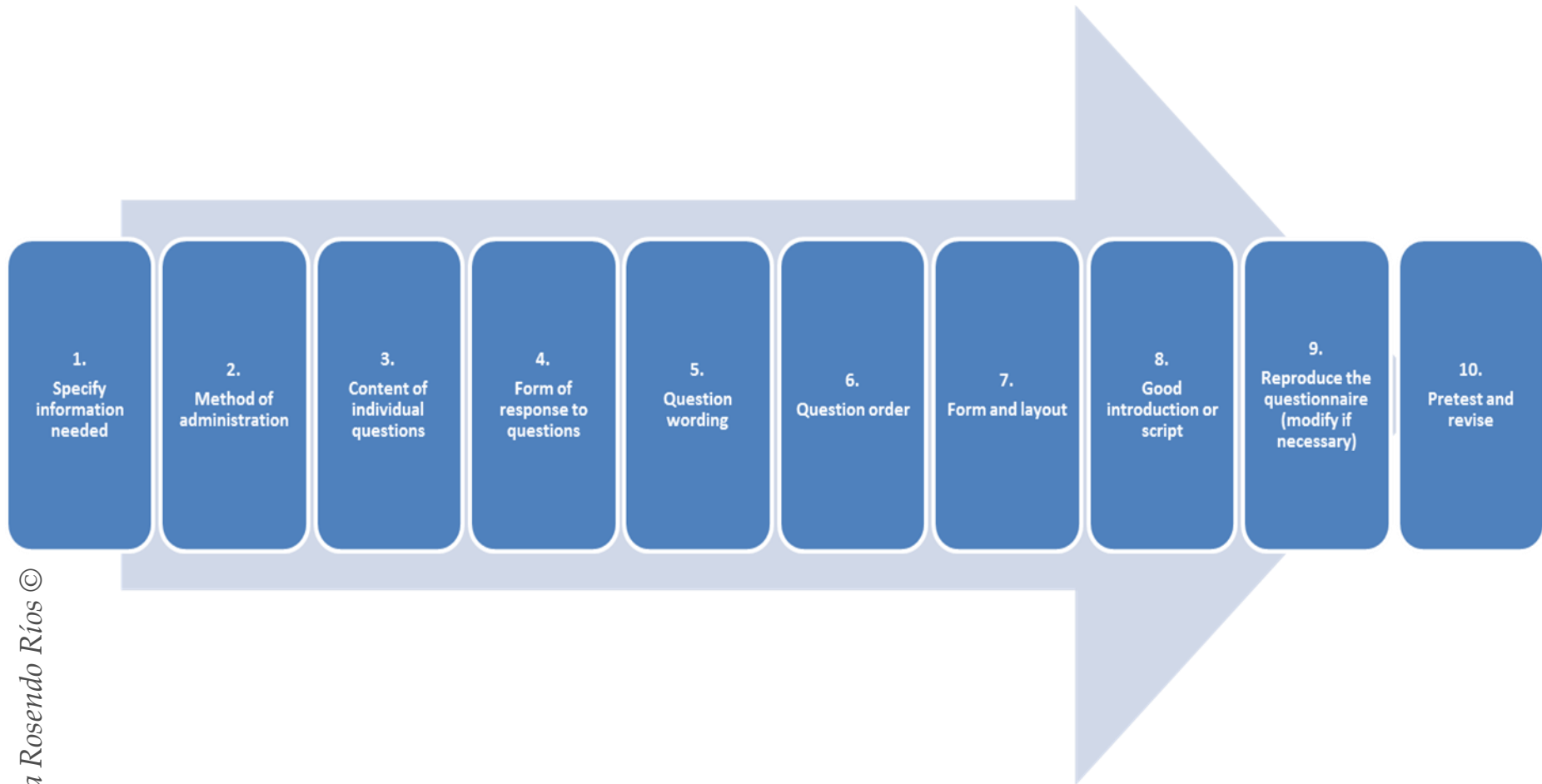
Questionnaire

Set of written or verbal questions that the respondent should answer.

❖ 3 main objectives:

1. Translate the information needed in a set of questions.
2. Motivating and encouraging for the respondent
3. Minimize response error

BASIC RULES FOR QUESTIONNAIRE ELABORATION



1. Specify the information needed

Questions have to align with hypotheses

2. Determine methods of administration

Type of interviewing method will influence

-type of questions, wording, and all further steps.

E.g.

- ✓ Personal interviews: lengthy, complex...are ok
- ✓ Telephone: short
- ✓ Self administered: detailed

3. *Determine content of individual questions*

3 main things to consider:

1. No extra questions
2. Avoid double-barrelled questions
3. Topics:

- they *know* (filter questions e.g. do you know product X?)

- they *can remember* (associated cues, e.g. which of these brands of perfume do you remember watching last night on TV?)

- they can *phrase* (providing aids, e.g. maps, descriptions, pictures...)

4. *Determine structure and form of response: question types*

☆ **Open-ended (unstructured): the answer is open**

-For Factual information

There is a correct answer. E.g. How old are you?

-To uncover motivations, feelings and attitudes.

Mainly used for exploratory research.

BASIC RULES FOR QUESTIONNAIRE ELABORATION

Example: Un-structured Interview

Personal or Telephone Interviews

What toppings, if any, do you usually add to a pizza other than cheese when ordering a pizza for yourself from Pizza Hut? **(Interviewer: Record all mentioned toppings in the space provided below. Make sure you probe for specifics and clarity of responses.)**

or

What toppings, if any, do you usually add to a pizza other than cheese when ordering a pizza for yourself from Pizza Hut? **(Interviewer: DO NOT read the listed toppings; just record the toppings by checking the box next to the mentioned toppings below. Make sure you probe for specifics and clarity of responses.)**

- | | | |
|--|---------------------------------------|--|
| <input type="checkbox"/> anchovies | <input type="checkbox"/> bacon | <input type="checkbox"/> barbecue beef |
| <input type="checkbox"/> black olives | <input type="checkbox"/> extra cheese | <input type="checkbox"/> green olives |
| <input type="checkbox"/> green peppers | <input type="checkbox"/> ground beef | <input type="checkbox"/> ham |
| <input type="checkbox"/> hot peppers | <input type="checkbox"/> mushrooms | <input type="checkbox"/> onions |
| <input type="checkbox"/> pepperoni | <input type="checkbox"/> sausage | <input type="checkbox"/> some other topping: _____ |

Self-Administered Survey (Online or Offline)

In the space provided below, please write the types of toppings, if any, that you usually add to a pizza other than cheese when ordering a pizza for yourself from Pizza Hut. **(Please indicate as many toppings as apply.)**



4. Determine structure and form of response: question types

- ☆ **Closed-ended (structured):** respondent chooses answer from a list of possible ones, using fixed scales.
 - Response categories must be *exhaustive* (all possible responses should be included in the alternative options)
 - Response categories must be *mutually exclusive*
 - The researcher has to *control response order bias*. The recommended procedure for dealing with this type of bias is the *split-ballot technique*, where response options are re-ordered or randomized to create different versions of the survey. E.g. each response category will appear in each position (first, middle, last) about equally across the sample.

4. *Determine structure and form of response: question types*

☆ **Closed-ended (structured)**

Three main types:

1. *Multiple choice questions*

- *Researcher has to avoid order or position bias.*
- **Disadvantage:** *need more time than unstructured questions to design, exploratory research may be needed to know the alternatives, bias response.*

BASIC RULES FOR QUESTIONNAIRE ELABORATION

Example: Structured Interview

Personal Interview

(HAND RESPONDENT CARD.) Please look at this card and tell me the letters that indicate what toppings, if any, you usually add to a pizza other than cheese when ordering a pizza for yourself from Pizza Hut. **(Interviewer: Record all mentioned toppings by circling the letters below, and make sure you probe for any other toppings.)**

- | | | |
|-------------------|------------------|-------------------------------|
| [a] anchovies | [b] bacon | [c] barbecue beef |
| [d] black olives | [e] extra cheese | [f] green olives |
| [h] green peppers | [i] ground beef | [j] ham |
| [k] hot peppers | [l] mushrooms | [m] onions |
| [n] pepperoni | [o] sausage | [p] some other topping: _____ |

Telephone Interview (Traditional or Computer Assisted)

I'm going to read you a list of pizza toppings. As I read each one, please tell me whether or not that topping is one that you usually add to a pizza when ordering a pizza for yourself from Pizza Hut. **(Interviewer: Read each topping category slowly and record all mentioned toppings by circling their corresponding letter below, and make sure you probe for any other toppings.)**

- | | | |
|-------------------|------------------|-------------------------------|
| [a] anchovies | [b] bacon | [c] barbecue beef |
| [d] black olives | [e] extra cheese | [f] green olives |
| [h] green peppers | [i] ground beef | [j] ham |
| [k] hot peppers | [l] mushrooms | [m] onions |
| [n] pepperoni | [o] sausage | [p] some other topping: _____ |

Self-Administered Survey (Online or Offline)

Among the pizza toppings listed below, what toppings, if any, do you usually add to a pizza other than cheese when ordering a pizza for yourself from Pizza Hut?

(Please check as many boxes as apply.)

- | | | |
|--|---------------------------------------|--|
| <input type="checkbox"/> anchovies | <input type="checkbox"/> bacon | <input type="checkbox"/> barbecue beef |
| <input type="checkbox"/> black olives | <input type="checkbox"/> extra cheese | <input type="checkbox"/> green olives |
| <input type="checkbox"/> green peppers | <input type="checkbox"/> ground beef | <input type="checkbox"/> ham |
| <input type="checkbox"/> hot peppers | <input type="checkbox"/> mushrooms | <input type="checkbox"/> onions |
| <input type="checkbox"/> pepperoni | <input type="checkbox"/> sausage | <input type="checkbox"/> some other topping: _____ |

Source: Hair et al. (2006)

4. *Determine structure and form of response: question types*

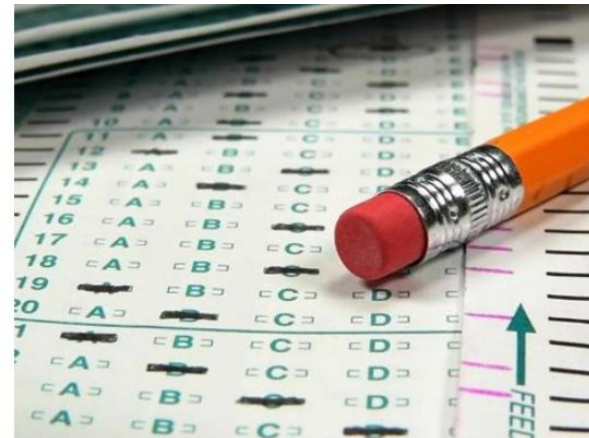
☆ Closed-ended (structured)

Three main types:

2. *Dichotomous questions : 2 alternatives.*

- *Researcher has to decide whether to include a neutral alternative.*
- *Forces response?*

3. *Scales*



5. Determine question wording

Phrasing of the questions:

- Define the issue

- Use ordinary simple words

“Occasionally, sometimes, regularly, often...”

- Avoid leading or biasing questions

“Do you agree with the Pediatric Association....”

- Avoid implicit alternatives

Do you prefer eating out or at home on hollidays?

- Avoid assumed consequences

Are you in favor of increasing public prices on education?

- Avoid generalizations and estimates

How many times did you go to refill your car at the petrol station last year?

- Avoid double-barreled questions

Do you think this hotel is comfortable and clean?

- Use positive and negative statements (dual statements)

Recode (or reverse code) negative statements

6. *Determine question order*

-Opening question

Interesting (respondents may stop their cooperation)

-Type of information

“Fannel approach...”

-Effect on subsequent questions

Funnel approach/ Flowerpot approach may reduce the tendency towards question order bias....”

overall loyalty → customer loyalty towards product → product features

Flowerpot Approach

Specific framework — for integrating sets of question/scale measurements into a logical, smooth-flowing questionnaire

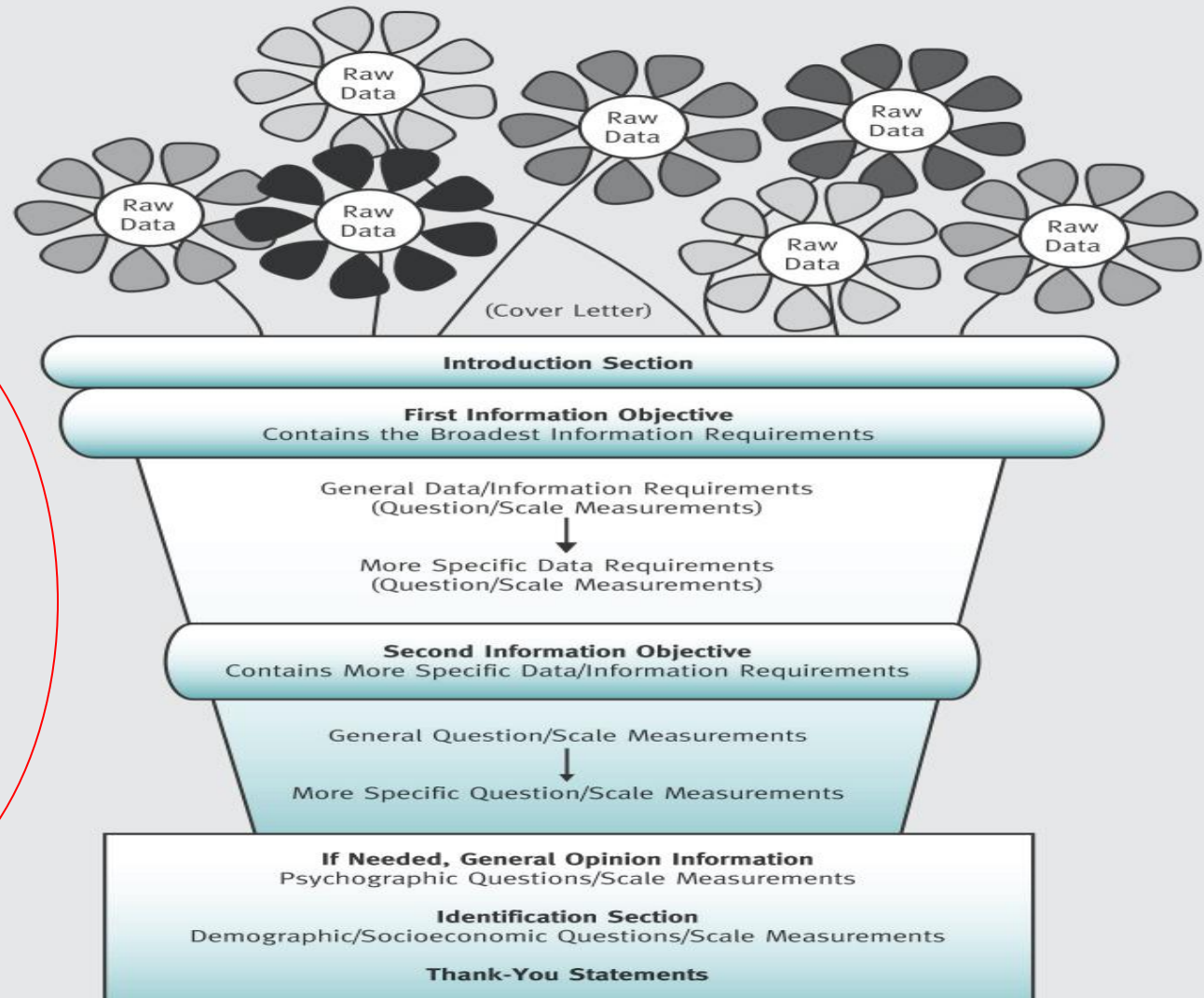
-Difficult or sensitive questions at the end

increases cooperation

BASIC RULES FOR QUESTIONNAIRE ELABORATION

Flowerpot Approach

This diagram illustrates the overall flowerpot design of a questionnaire that fits a research survey that has two defined information objectives and calls for an identification base that contains both psychographic and demographic-socioeconomic traits about the respondent.



7. *Determine form and layout*

It is important for response rate:

-Hints:

- Try to keep it short: The shorter the survey, the larger the response rates
- Split into sections
- Simple and clear instructions

8. Develop a good introduction or script

It is important for response rate:

-Cover letter or e-mail message:

- Who you are
- Why you are contacting them
- Your request for their help in providing information
- How long it will take
- Responses will be anonymous (aggregated) or confidential (if this is true)
- Any incentives they may receive for participating

9. *Reproduce the questionnaire*

It is important for response rate:

-Hints:

- Try to use high quality paper
- Do not split questions or tables into different pages
- If it is more than one page long, try to present it in a booklet rather than a number of clipped or stapled pages
- Avoid tendency to crowd questions together to make it look shorter. Little blank spaces between questions should be placed as close to the questions as possible.
- The questionnaire should be easy to read and answer.

10. Pre-test questionnaire and revise if necessary

It is important for response rate:

-Conduct a pilot study

- Similar respondents

- Two pre-tests are recommended:

 - Personal interview questionnaire pre-test

 - Second pre-test with the chosen method of administration

 - How many people? Minimum of 5 in the interview and 10/30 in the second pretest

- Data collection should never start until the questionnaire has been pretested.

BASIC RULES FOR QUESTIONNAIRE ELABORATION

EXHIBIT 13.13 Example of an Introduction-Screening-Quota Sheet for a Retail Bank Study Using Personal Interviews

INTRODUCTION-SCREENING-QUOTA SHEET FOR THE UNIVERSITY STUDENT BANKING OPINION SURVEY

Approach to Randomly Selecting a Student

- A. Politely walk up to an individual and introduce yourself.
- B. Politely explain to the person that:
Your Marketing Research class is conducting an interesting class project this semester on students' banking attitudes and habits and you would like to include their opinions in the study.

- IF THEY SAY "NO" or "DON'T WANT TO PARTICIPATE," politely thank them and move on to randomly select another person and repeat steps A and B.
- IF THEY ARE WILLING TO BE INTERVIEWED, ASK:

Q1. Are you currently a university student this semester?

If YES, continue with Q2.

If NO, thank them and **DISCONTINUE** the survey.

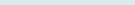
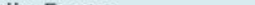
Q2. Have you already participated in this survey?

If YES, thank them and **DISCONTINUE** the survey.

If NO, continue with Q3.

Q3. Thinking about the various banking systems which you may or may not use, please tell me the name of the one bank that you would generally consider as being "**YOUR**" primary bank.

(CHECK TO SEE IF THE RESPONDENT'S CHOICE FITS YOUR NEEDED QUOTA OF BANK TYPES BELOW)

Quota						Possible “Other” Banks	
1	2	3	4	5	Bank of America	<input type="checkbox"/>	Beneficial Savings
1	2	3	4	5	Sun Trust Bank	<input type="checkbox"/>	Glendale Federal
1	2	3	4	5	Citicorp	<input type="checkbox"/>	USF Credit Union
1	2	3	4	5	Capital One	<input type="checkbox"/>	Southeast Bank
1	2	3	4	5	First Union	<input type="checkbox"/>	Wells Fargo
1	2	3	4	5	Some Other Bank 	<input type="checkbox"/>	Write In 

- IF THE ANSWER **FITS** A NEEDED QUOTA AREA,
 - (a) cross out one of the respective quota counts, and
 - (b) record the answer in Question 1 of the survey and continue with Question 2 of the survey.
- IF THE ANSWER **DOES NOT FIT** A NEEDED QUOTA AREA,
 - (a) politely thank them and **DISCONTINUE** the survey, and
 - (b) go back and repeat Steps A and B.

BASIC RULES FOR QUESTIONNAIRE ELABORATION

EXHIBIT 13.14 Example of the Question/Scale Format and Rating Card Used in Collecting Raw Data in a Retail Banking Survey

RATING CARD A (IMPORTANCE SCALE FOR Q2)

Rating Numbers	Description
6___	Extremely Important Consideration to Me
5___	Definitely Important Consideration to Me
4___	Generally Important Consideration to Me
3___	Somewhat Important Consideration to Me
2___	Only Slightly Important Consideration to Me
1___	Not At All Important Consideration to Me

Q2 Let's begin. I am going to read to you some bank features which may or may not have been important to you in selecting "YOUR" bank.

Using this rating card (**HAND RESPONDENT RATING CARD A**), please tell me the number that best describes how important you feel the bank feature was to you in helping select "YOUR" bank.

To what extent was (**READ FIRST FEATURE**) an important consideration to you in selecting "YOUR" bank?

(**INTERVIEWER: MAKE SURE YOU READ AND RECORD THE ANSWER FOR ALL LISTED FEATURES**)

Rating Number	Features	Rating Number	Features
___	Convenience of branch locations	___	Competitive minimum service charges
___	Flexibility of banking hours	___	Free checking availability
___	Friendly/courteous bank personnel	___	Interest rates on saving type accounts
___	No minimum balance requirement	___	Competitive interest rates on loans
___	Availability of credit card services	___	Credibility of the bank's reputation
___	Availability of ATM services	___	Bank's promotional advertisements

(UPON COMPLETION TAKE BACK RATING CARD A)

BASIC RULES FOR QUESTIONNAIRE ELABORATION

EXHIBIT 13.15 An Example of an Interviewer's Call Record Sheet

Interviewer Code Number 076	Date 10/11	Date 10/13	Date 10/16	Date 10/18	Date 10/19	Date 10/20	Date 10/23
Total Contact Attempts	20	22	24	18	14	20	8
Number of initial attempts	8	12	10	8	12	14	4
Number of callbacks	12	10	14	10	2	6	4
Total Number of Noncontacts	4	2	5	0	6	2	2
No answer	1		1				
Reached a recording	2		1		3		1
Wrong phone number		1			1		
Phone no longer in service	1		3			1	1
Specific person not available					2		
Other reasons		1				1	
Total Number of Actual Contacts	4	10	5	8	6	12	2
Number of Completed Interviews	4	8	5	6	3	2	2
Bank of America	2	1		1	1		
Sun Trust Bank		2	1	2			
Citicorp	1	1	2			1	
Capital One	1	1		3			
First Union		3			1		1
Other Banks			2		1	1	1
Contacts per Completed Interview	1	1.25	1	1.3	2	6	0
Number of Terminated Interviews	0	2	0	2	3	10	0
Screening ineligibility					1	2	
Refused participation				1		1	
Respondent break-off		1		1			
Quota requirement filled					3	7	
Language/hearing problems		1					
Some other reason							
Interviewing hours	4	4	4	5	4	4	4
Training hours	2						
Travel hours	4.5						
Mileage to interviewing center	35						

Source: Hair et al. (2006)

CHAPTER 4. Measurement Scales and Questionnaires

CHAPTER OBJECTIVES

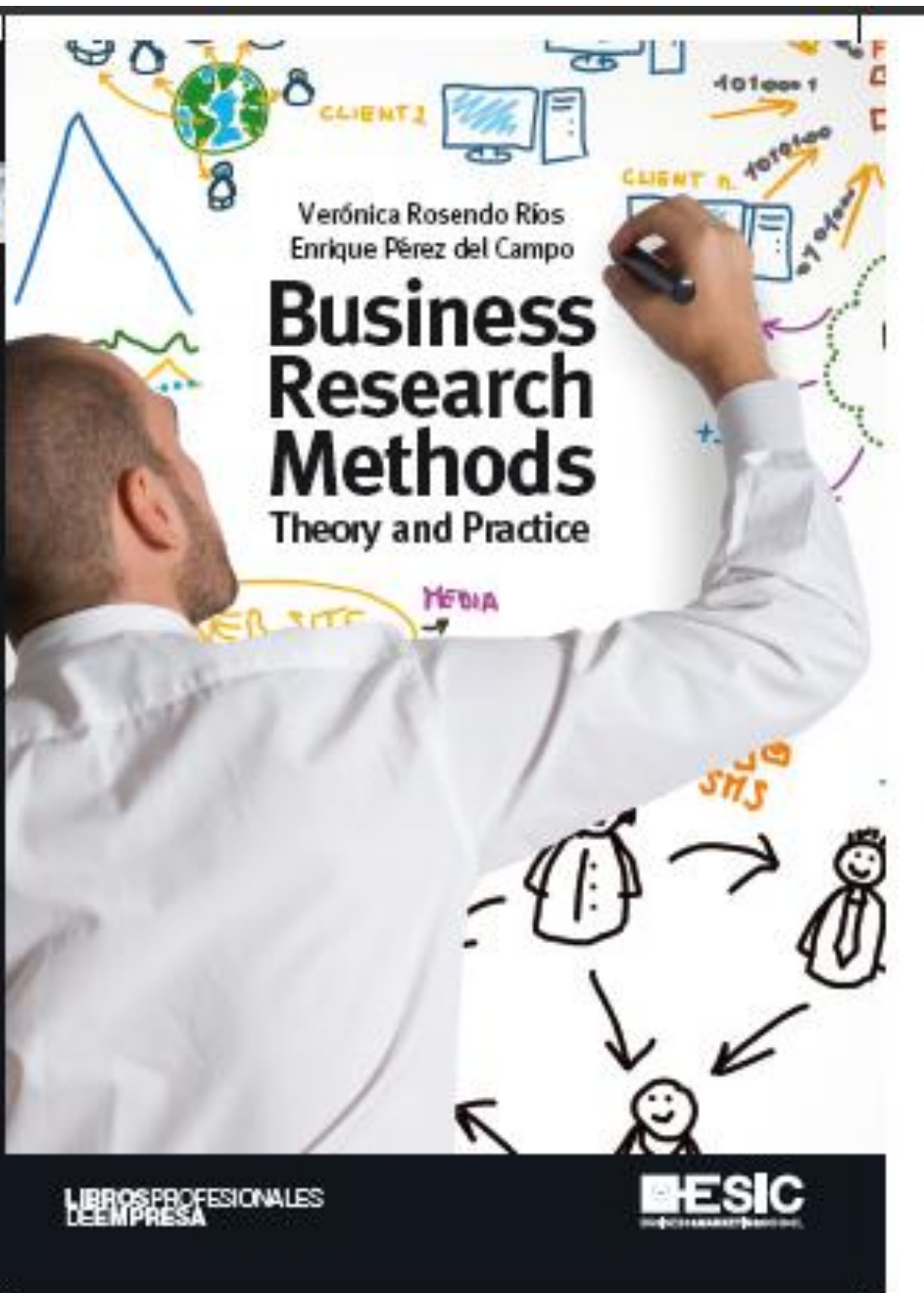
After reading this chapter, you should be able to:

- ☆ Understand the difference between the different types of *measurement scales*.
- ☆ Understand the possible *scaling techniques*
- ☆ Understand the concepts of *reliability and validity* of questionnaires
- ☆ Know basic rules on *how to elaborate a questionnaire*.

CHAPTER 4. Measurement Scales and Questionnaires

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Chapter 4

Measurement Scales and Questionnaires

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