

LCDB7011

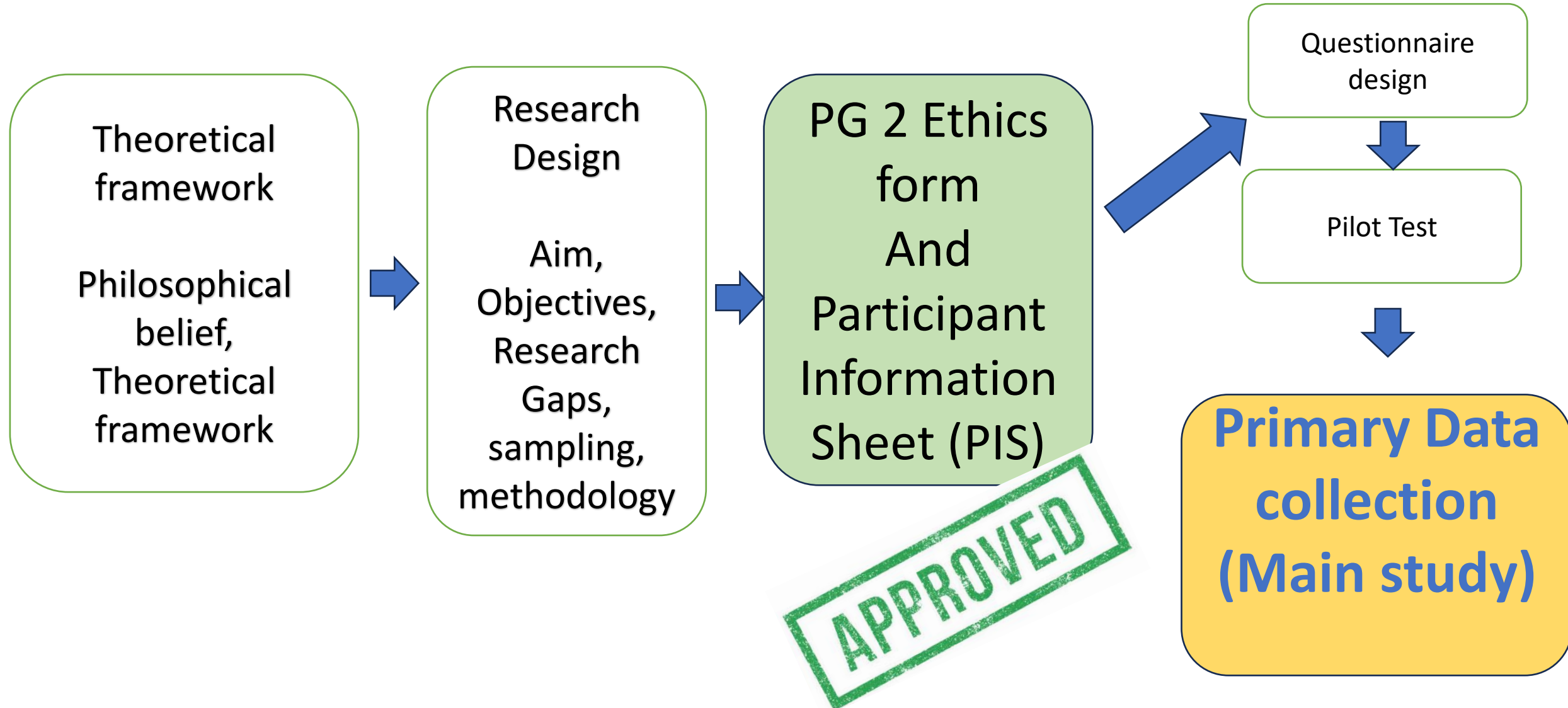
Quantitative Research Methods

Week 2 – Research Design:
Developing Scales and
Questionnaires

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From Research Design to Data Collection (Operation perspective)





Burgess (2001) identified the basic process of survey research

1. define your research aims
 2. identify the population and sample
 3. decide how to collect replies
 4. design your questionnaire
 5. run a pilot survey
 6. carry out the main survey
 7. analyse the data
- 

Questionnaire for a Survey Research

The purpose of today's lecture is to enable you understand issues relating to:

- Designing and constructing the questionnaire
- Identifying and keeping track of respondents (6).
- Delivering the questionnaire (6)



Designing and constructing the questionnaire

“A crucial part of good research design concerns making sure that the questionnaire design addresses the needs of the research. To put this another way; somehow we need to ensure that the questions asked are the right ones. To move from the research aims (1) to decide what are the right questions to be put on a questionnaire (4) is a key aspect that needs to be addressed by the researcher.” Burgess (2001, p.1)

Designing and constructing the questionnaire

“Start your survey by setting down the aims for the survey. To define the aims for academic, as opposed to market research, you will need to review the relevant literature and you may need to do some preliminary research amongst your target subjects. Fulfilling these aims should then drive the design of your questionnaire and help select questions that are relevant, concise and efficient.” (Burgess, 2001, p.3).

Identifying the Variables (Measurement items) for your Questionnaire and carrying out your Survey

- Creating Your Survey Instrument:

1. What items (questions) to use?
2. Is there enough literature in the area? (see p.168 to 176 of thesis)
3. If not, what to do?

- Likert Scale

How to pick the right multiple choice options



Designing and constructing the questionnaire

- If not enough literature and no validated measurement items, what to do?
- Create your own variables
- How to do that – Focus Group

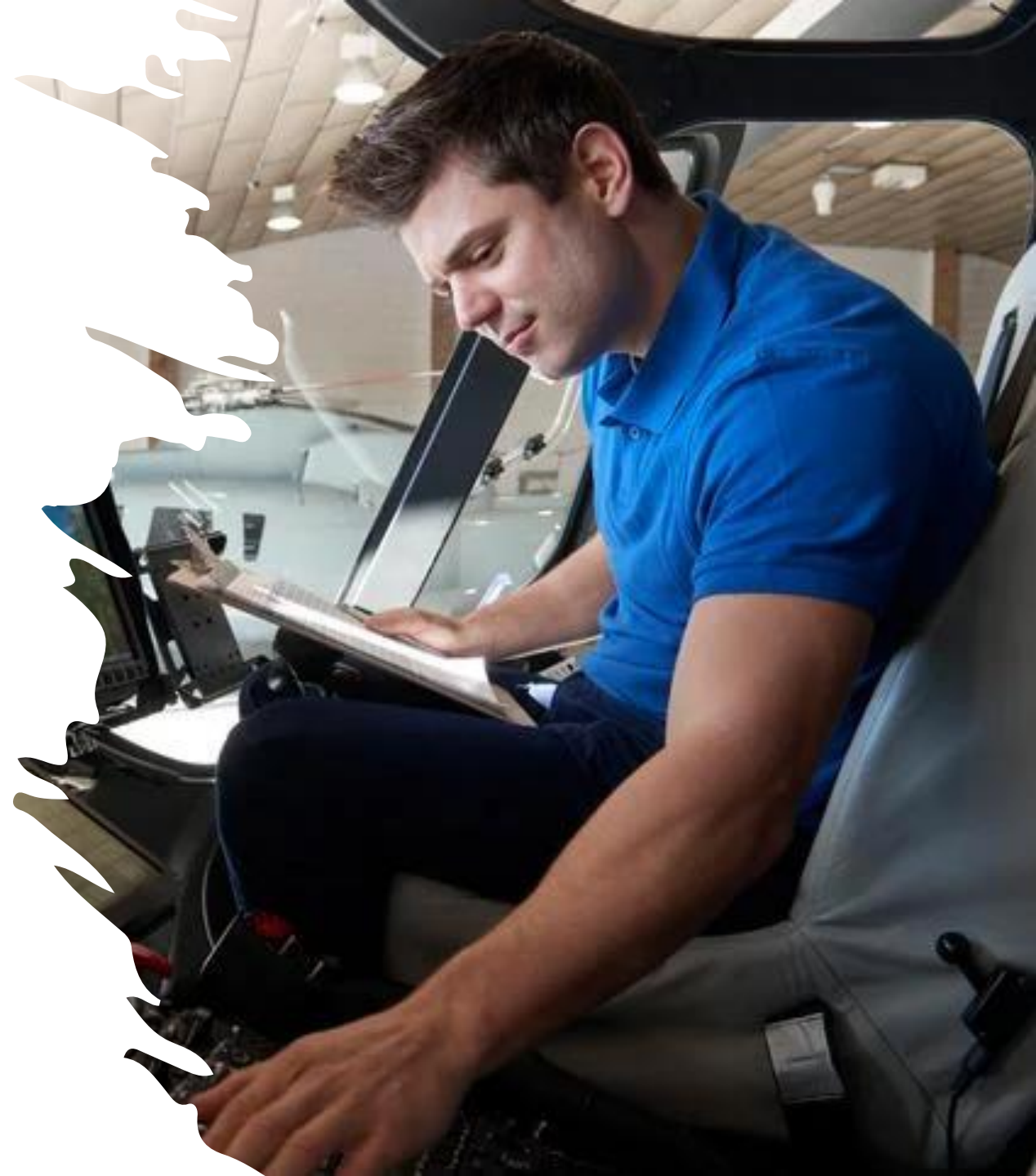


Ensuring suitability of your questionnaire to the sample for your study - Run a Pilot Study

“Most researchers make the mistake of asking too many questions. This often arises from an incomplete analysis of how to meet the survey aims. Your greatest enemy in survey research may well be poor response rate. Clear and concise questionnaires can help get the best response.”
(Burgess, 2001, p.3).

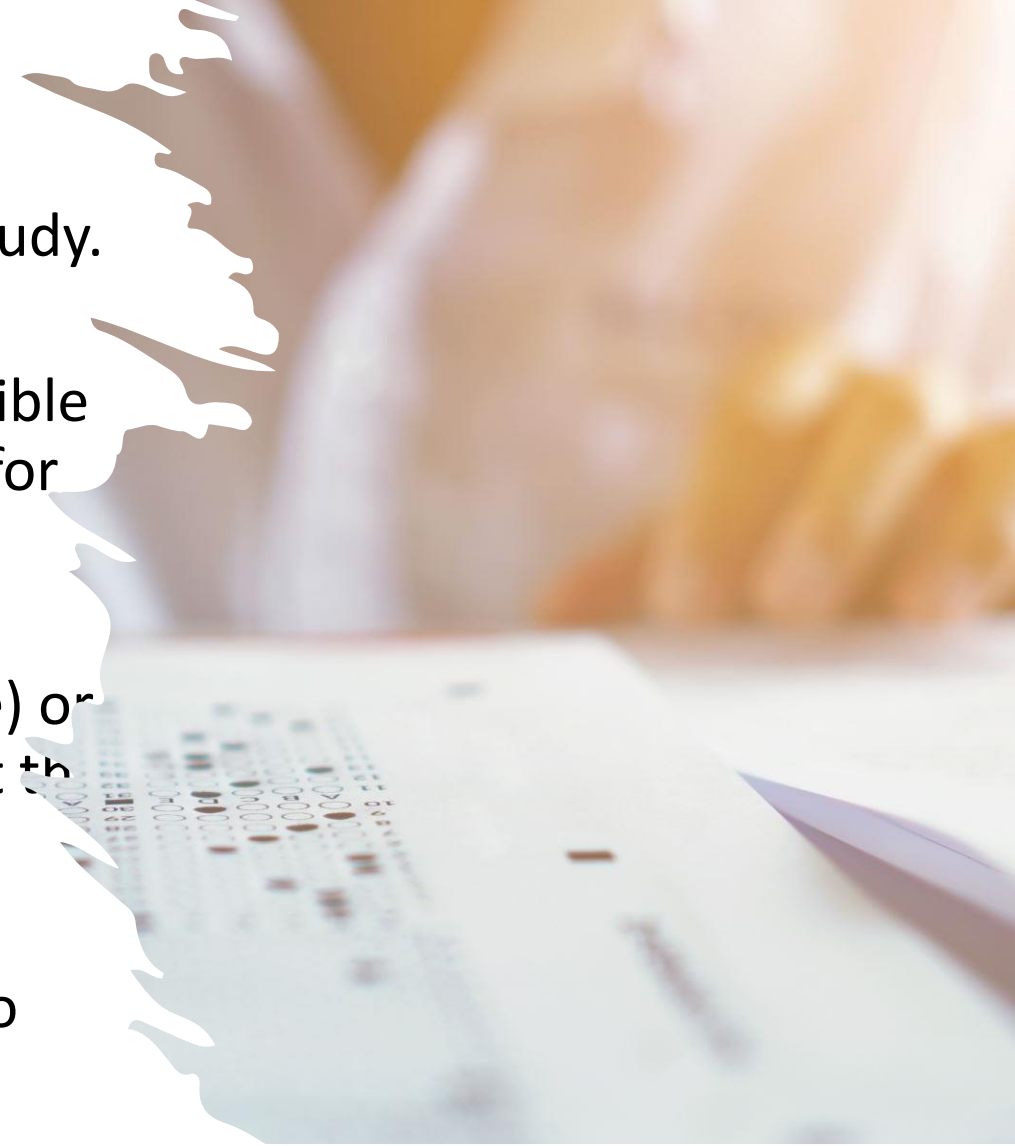


Ensuring suitability
of your
questionnaire to
the sample for your
study - Run a Pilot
Test



Is pilot test important ?

- To determine the feasibility of the study protocol in a study.
- To test whether the study instrument(s), is asking the intended questions, whether the format is comprehensible and whether the selected validated tool is appropriate for the target population.
- To test the appropriateness of data collection using the selected interview technique (face-to-face or telephone) or self-completed questionnaire (postal or administered at the centre).
- To test the data collection process – the time taken to complete questionnaire, and the subjects' willingness to participate in the study.
- To obtain preliminary data for the primary outcome measure, in order to calculate a required sample size (especially in randomized control trials).



Quantitative Data Collection Methods

- Time and effort required to produce useful data *before* data is collected (changes difficult to make once data collection starts)
 - Good knowledge of the area under investigation (qualitative input)
 - Knowledge of the subjects to be questioned
 - Clear idea of the objectives of the research instrument



<http://www.survey-reviews.net/wp-content/uploads/2012/02/survey.jpg>

Considerations For Quantitative Research Design

- Better response rates from interviewer-led surveys than from self-response surveys.
- Self-response surveys are usually cheaper.
- Interviewer-led surveys can produce richer information.
- Self-response surveys can reach more people.
- Online surveys are faster but have lower response rate
- The quality of online surveys is more difficult to control
- Make sure you choose online survey software carefully

Who Are your respondents?

Gadget Inc
Electronic Superstores

Feedback Please!

To help us improve our service please take a moment to fill out this short survey.

	Importance to You?				How Did We Do?			
	Very Important	Somewhat Important	Little Importance	Not Needed	Excellent	Good	Fair	Poor
Selection in Store	☐	☐	☐	☐	☐	☐	☐	☐
Sales Staff Courtesy	☐	☐	☐	☐	☐	☐	☐	☐
Sales Staff Knowledge	☐	☐	☐	☐	☐	☐	☐	☐
Competitive Pricing	☐	☐	☐	☐	☐	☐	☐	☐
Parking	☐	☐	☐	☐	☐	☐	☐	☐
Weekend Hours	☐	☐	☐	☐	☐	☐	☐	☐
Midweek Hours	☐	☐	☐	☐	☐	☐	☐	☐

Comments or Suggestions? (Please use back if you want more space)

What electronics have you purchased in the last 12 months (mark all that apply)?

☐ HDTV ☐ Desktop/Laptop ☐ Smart Phone ☐ Networking
☐ Game Console ☐ Tablet Computer ☐ Feature Phone ☐ Speakers
☐ Other: _____

Your ZIP code: This store: ☐ Seattle ☐ Bellingham ☐ Tacoma

Would you like to receive email notices? (We send no more than one per month and do not share your email with third-parties).

Email address (optional):

Wisewood Children and Young People's Survey

We want to make sure that we are doing the sports activities that you want to do, please try and answer as many questions as you can.. **We need your views!**

1 Which of these activities would you like to do?

	YES	NO	ALREADY DO IT
Basketball	☒	☒	☒
Girls Football	☒	☒	☒
Badminton	☒	☒	☒
Street Dancing	☒	☒	☒
Table Tennis	☒	☒	☒
Trampolining	☒	☒	☒
Gymnastics	☒	☒	☒
Multi-Sports	☒	☒	☒
Hockey	☒	☒	☒

<http://www.sheffkids.co.uk/adultsite/documents/Wisewood%20questionnaire.pdf>

<http://api.com/landing/market-research.php>



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

More considerations

- Will the survey be completed right after the event, or sometime after?
- Will it be completed in front of other people or in private?
- Many people are poor at estimating numerical info about their lives.
- The more common the event the shorter a person's window of recall is.
- People's behaviour does not necessarily reflect what they say in a questionnaire

Types of Variables in Research

- **Nominal, Ordinal, Interval & Ratio Data: Simple Explanation With Examples**

<https://youtu.be/5Yh-9xdJzAs?si=LCIVrRAEOhVAjsT2>

Types of Data: Nominal, Ordinal, Interval/Ratio - Statistics Help (6:19 mins)

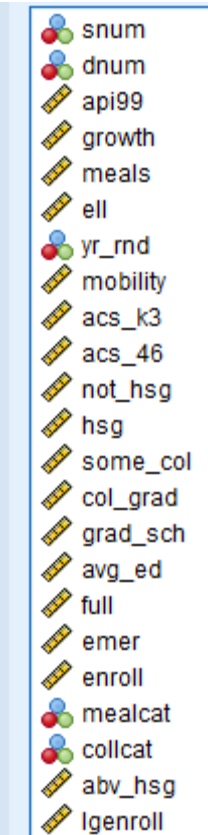
- <https://youtu.be/hZxnzfnt5v8>

Type of questions

The type of question determines your analysis – you cannot go back!

- **Categorical questions** – the answers are distinct categories that do not overlap (colours, gender, nationality etc)
- **Ordinal questions** – the answers are categories that have an inherent order but uneven intervals (e.g. 1 week, 1 month, 1 year)
- **Interval questions** – the answer categories have an order with a specific interval (e.g. Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree) Sometimes that even interval is assumed!
- **Ratio questions** – the same as Interval questions but with a true (meaningful) zero (e.g. money)

In practice, categorical and ordinal questions are often treated the same; and interval and ratio questions are often treated the same



Example

Categorical Variables

- Based on a nominal/ordinal scale, where the levels are separated by discrete groups.



"Male vs Female" is **nominal** because the categories do not have any order.



"Small vs Medium vs Large" is **ordinal** because the categories have an increasing order.

Continuous Variables

- Based on an interval/ratio scale, where levels run unbroken, and the gaps between them are equal.

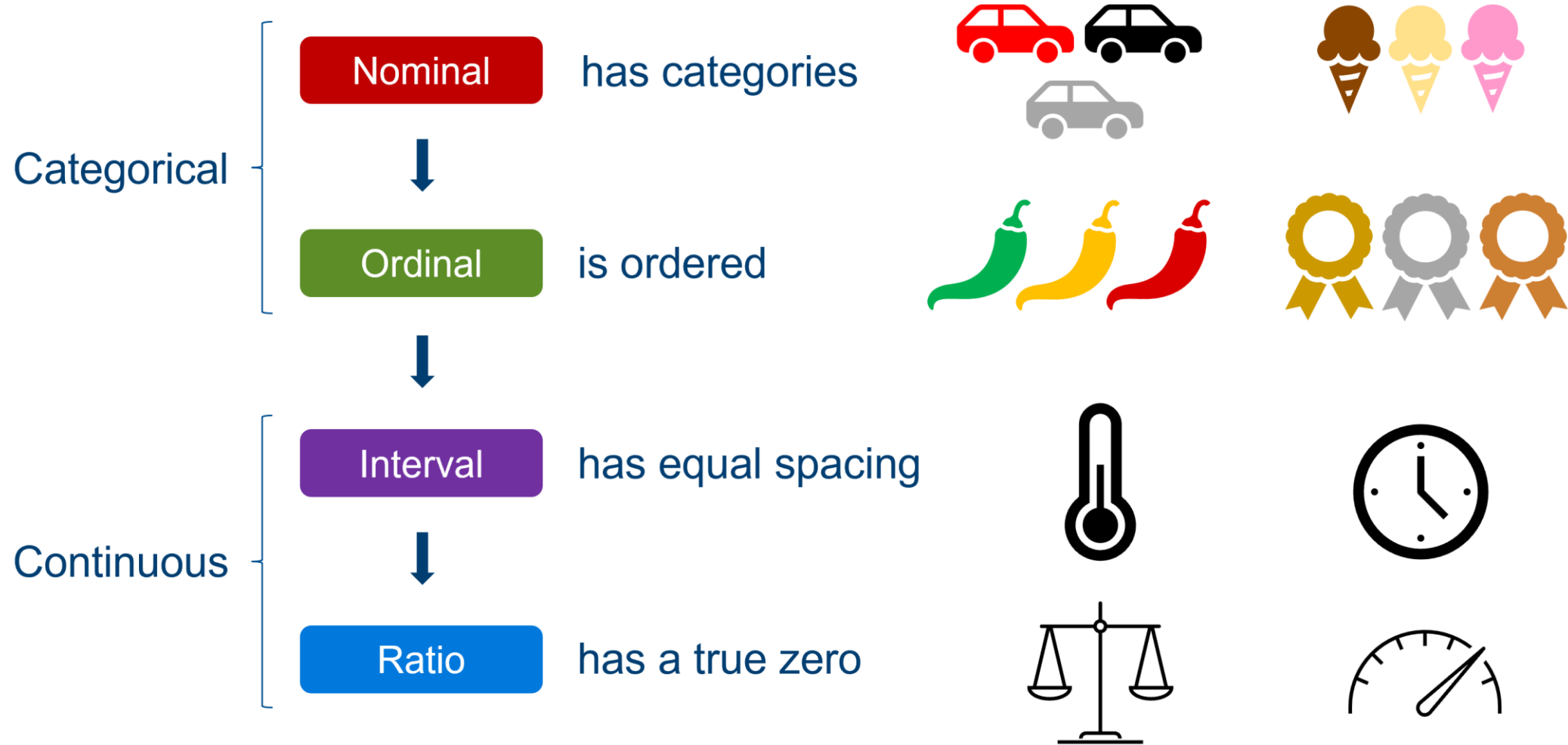


"Temperature in °C" is **interval** because there is no true zero (30°C is not twice as hot as 15°C).



"Time taken in sec" is **ratio** because there is a true zero point (30sec is twice as long as 15sec).

Example



Question wording

- Keep questions as short as possible
 - Max 16 words.
- Consider providing medium length (30 word) introductions to groups of related questions (context is vital!)
- Use open-ended questions sparingly

20

Responses and scales

- Are the response options clear and complete?
- How many response categories are required?
- How do the response options link with the planned analysis?
(Will you get what you need?)
- Is the question necessary?
- Several questions or just one?
- *Can* respondents answer the question?
- *Will* respondents answer the question?
- Is the question clear and unbiased?

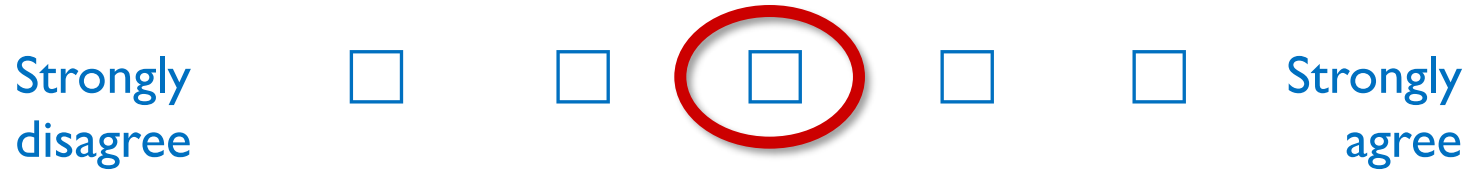


Scales

- How many response options do you give?
- Do you use a mid point?
- Do you use ranking questions?
- What can you do to minimise response style bias?
- Do you use end points?
- How many response points do you offer?
- What is response style bias and how can you avoid it?



Mid-point / neutral opinions

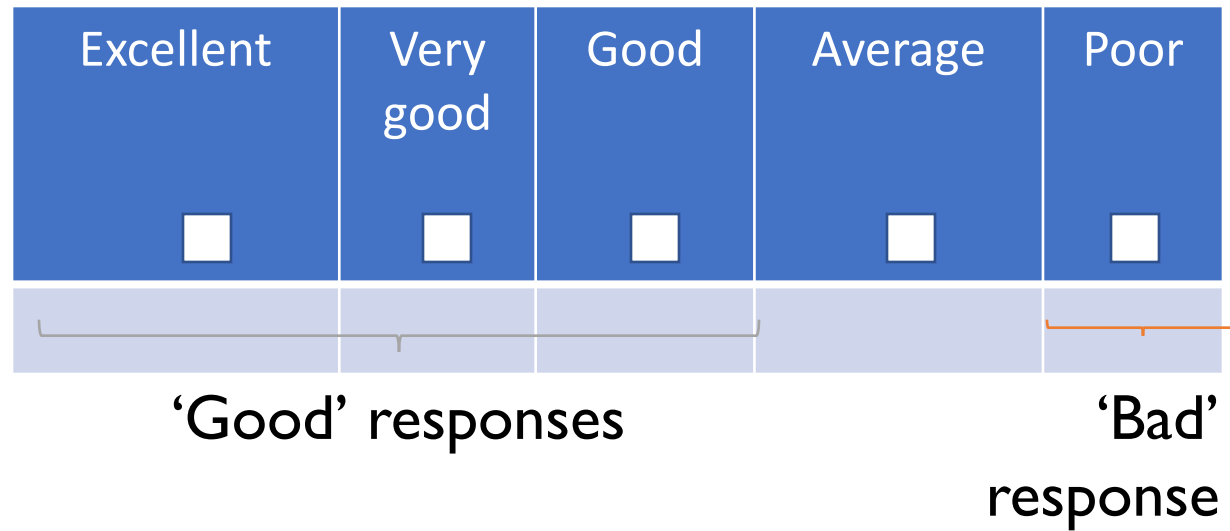


Use mid-points in questions on attitude.

- Historically controversial as it was thought that respondents chose a neutral option to avoid thinking about a question.
- Now shown that including a mid-point increases reliability and validity
- But: scales without mid-point can be useful in international research to reduce response bias

Common Issues

What did you think about the waiting time?



Common Issues

What is your age group?

0-18	18-30	30-45	45+
☐	☐	☐	☐

Common Issues

What was the first drink you had today?

☐ Tea

☐ Coffee

☐ Water

☐ Juice

☐ Haven't had a drink today

Common Issues

How do you rate the student experience and teaching at your university?

Very poor	Poor	Satisfactory	Good	Very good
☐	☐	☐	☐	☐

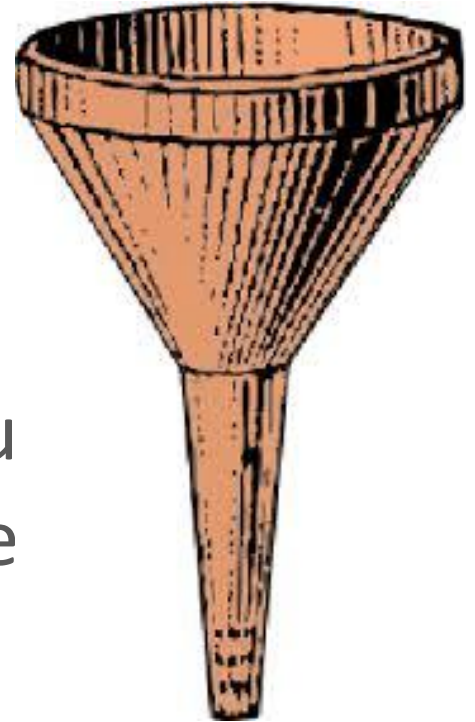
Common Issues

Great CRM leads to great WOM. How true is this in your experience?

Very untrue	Untrue	Don't know	True	Very true
☐	☐	☐	☐	☐

Ordering your questionnaire

- Place easy, non-challenging questions first
- Key filter questions should go in early.
- Use a funnel structure
 - Go from basic to more in depth.
 - General questions before specific questions.
 - Go from the least sensitive to the most sensitive qu
 - But – try and put important questions in before the



Other elements to remember

- Make it look professional.
- Give an estimated completion time.
- Put the deadline for return at the beginning and end of the questionnaire.
- Provide a return address – on the questionnaire.
- Say 'Thank you'.



Evaluating & Testing the Questionnaire

Is the questionnaire a 'good' questionnaire?

- Will it collect the data necessary to address the research objectives?
- Is the way in which the data is collected suitable for the planned method(s) of data analysis?
- Testing ...DOES IT WORK???

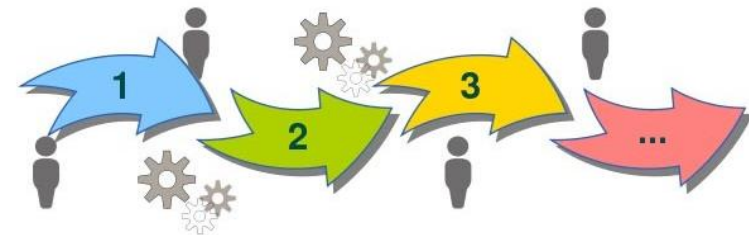


Results expressed as a percentage	Strongly Agree	Agree	Disagree	Strongly disagree	Don't know
1. My child/children like(s) school.	64	36			
2. The school keeps my child/children safe.	58	42			
3. My child/children settled in well when they started at the school and the arrangements were good.	50	42	5	3	
4. The school informs me about my child/children's progress.	14	69	11	3	3
5. I am satisfied about the level of progress that my child/children is/are making with their learning.	31	63	3	3	
6. The school helps me to support my child/children's learning.	23	63	11	3	
7. The teaching is good at this school.	47	47			6
8. The school meets my child/children's particular needs.	19	69	3	3	6
9. The school deals effectively with unacceptable behaviour.	25	53	11		11
10. The school takes account of my suggestions and concerns.	23	47	16		14
11. My child/children is/are given the opportunity to take part in a wide range of interesting and enjoyable activities.	39	58			3
12. The homework system is clear and my child/children receives/receive a manageable amount of home work.	27	50	23		
13. The school makes sure that my child/children is /are well prepared for the future (for example changing year group, changing school).	27	47	3		23
14. The school helps my child to have a healthy lifestyle.	47	53			
15. My child finds school meals enjoyable.	31	45	8	8	8
16. There are sufficient opportunities for parents to be Involved with the school.	52	45	3		
17. I feel that the school is led and managed well.	63	27	7		3
18. Overall, I am happy with my child/children's experience at this school.	58	39	3		

	Regularly	Occasionally	Not interested
19. I would be interested in my child/children attending a "Breakfast Club" in the school.	11	31	58

Activity

1. Think about a topic for your pilot test (30 valid cases)
2. State the aim, Objectives and questions
3. Identify your population and sample
4. Select the sampling method
5. Think about your conceptual framework (Theory selection)
6. Based upon your conceptual framework, please prepare a questionnaire



Summary

- Quantitative research is based on a number of key stage: Planning, designing, piloting and final questionnaire development.
- Key considerations include:
 - The wording of questions
 - How many questions for each variable?
 - The number of response options
 - The avoidance of response style bias

Ethical consideration

PG2 Ethics
Form

APPROVED

Personal
Information
Sheet (PIS)

APPROVED

**PG2 Ethics form and PIS
MUST BE APPROVED
BEFORE DATA COLLECTION**



Platform for
questionnaire
uploading

qualtrics[®] XM

EU Approved
platform

Platform for survey uploading

Google Form for survey

<https://docs.google.com/forms/u/0/>

Example



[Survey on Generational Study of Work Values in Tourism and Hospitality Industry : The Case of Generation Z - Google Forms](#)

