



RESEARCH METHODOLOGIES

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By the end of this session, you should ...

1. Have gained an overview of research paradigms, strategies and data collection methods
2. Know about qualitative and quantitative research methods
3. Be able to decide when to use different types of research, and how to combine them

Paradigms

- A paradigm is simply a **belief system** (or theory) that guides the way we do things, or more formally establishes a set of practices. This can range from thought patterns to action.
- Disciplines tend to be governed by particular paradigms, such as:
 - **positivism** (perception that there is only one universal truth/reality that can be tested)
 - **post positivism** (a view that that truth is context based and therefore experimental designs need to be set into context.)
 - **interpretivism/constructivism** (each person interprets truth in their own way so there are multiple interpretations, in order to construct a more universal truth, consensus needs to be achieved.
 - **critical theory** (acknowledgement that all knowledge is not value free and bias should be articulated.
 - **pragmatism** (a view that the research question is the most important determinant of the [research philosophy](#). Pragmatics can combine both, positivist and interpretivism positions within the scope of a single research according to the nature of the research question.

Paradigms

- Guba (1990) & Cresswell (2003), suggests paradigms can be characterised through their:
 - **ontology** (What is reality?) (These are explained on following slides)
 - **epistemology** (How do you know something?)
 - **methodology** (How do go about finding out?).
 - These characteristics create a holistic view of how we view **knowledge**: how we see ourselves in relation to this knowledge and the methodological strategies we use to un/discover it.

Practical:

Look at this
picture for a
few seconds



What was on the picture?

- Write down the first three things that come to your mind
- Don't talk to your neighbours

Ontology

Ontology is what **exists** and is a view on the nature of reality.

- Are you a **realist**? You see reality as something 'out there', as a law of nature just waiting to be found ?
- Are you a **critical realist**? You know things exist 'out there' but as human beings our own presence as researchers influences what we are trying to measure.
- Or, are you a **relativist** ? You believe that knowledge is a social reality, value-laden and it only comes to light through individual interpretation

Epistemology

- Epistemology is the study of the nature and scope of knowledge. What does knowledge mean and how do we acquire knowledge – intuitively, authoritatively, logically or empirically?
- Your view will frame your interaction with what you are researching and will depend on your ontological view.
- In turn influences your methodology.

Methodology

- Methodology refers to how you go about finding out knowledge and doing your research. It is your **strategic** approach, rather than your techniques and data analysis (Wainright, 1997).
- E.g.
 - scientific methodology
 - ethnographic approach
 - case study approach
 - ideological framework (e.g. an interpretation from Marxist, Feminist viewpoint)
 - dialectic approach (e.g. compare and contrast different points of view or constructs, including your own).
- **HENCE OUR VIEW OF KNOWLEDGE INFLUENCES OUR RESEARCH. IT VARIES BETWEEN AND WITHIN DISCIPLINES**

Research Methods

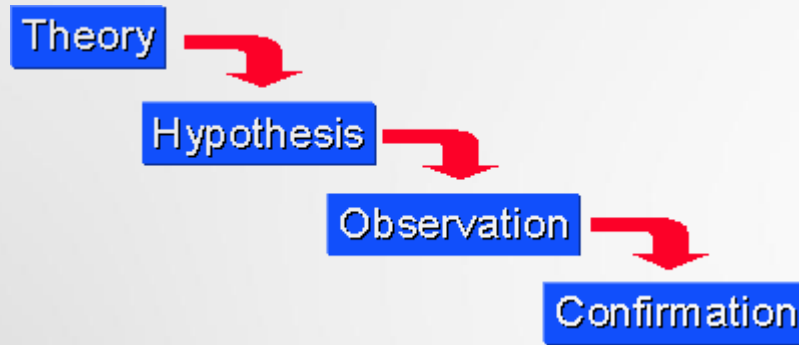
- The tools you use to do your research (Questionnaires, interviews, experiments, observations, netnography etc.
- These can be quantitative, qualitative or both – but should reflect your methodological, epistemological and ontological approach.

Examples of paradigms	Positivism	Post positivism	Interpretivism / constructivism	Critical theory
Ontology	Realism	Critical realism	Relativism	Critical realism
Epistemology	Objective	Objective	Subjective	Subjective
Methodology	Experimental/ structured measurement	Modified experimental/ structured measurement	Case study, Ethnography, grounded theory	Action research Dialogic
Method	Questionnaires, Experiment	Questionnaires, Experiment	Open ended questionnaires, Qualitative data.	Interviews, focus groups, communities, organisations
Example Impact of water company on environment	Laboratory Chemical experiment measuring dissolved liquids	Locationally considered chemical experiments	Case study of the company and attitudes to pollution/profit	Action research in communities to include stakeholders / workshops

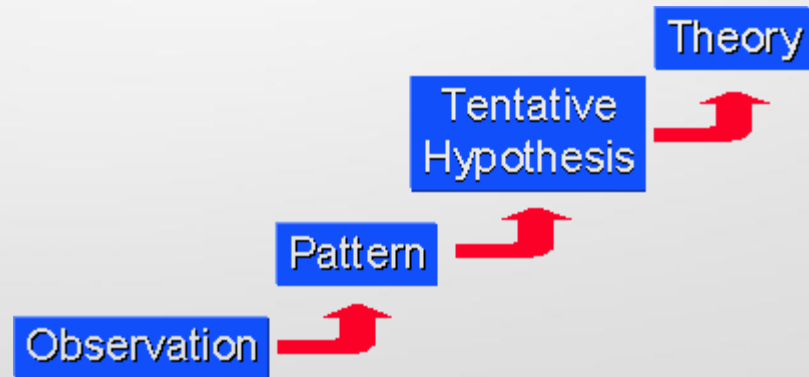
Practical

- In discussion with your neighbours, identify your own ontological, epistemological and methodological preferences

Deductive vs inductive research



Deductive method: top-down



Inductive method: bottom-up

Research Classification



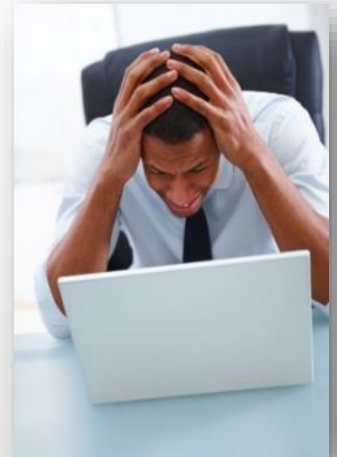
- Research type:
 - **Exploratory** - focuses on the discovery of ideas and insights as opposed to collecting statistically accurate data.
 - **Descriptive** - conclusive in nature due to its quantitative nature. It is preplanned and structured in design so the information collected can be statistically inferred on a population.
 - **Causal** - is quantitative in nature as well as preplanned and structured in design. It differs in its attempt to explain the cause and effect relationship between variables.

Research Classification cont.

- Data Sources
 - Primary - collected for this problem
 - Secondary - collected for another problem, but useful to this.
- Type of data
 - Qualitative - in-depth, open-ended and unquantifiable
 - Quantitative - information that can be summarised by numbers

Qualitative or Quantitative?

- Qualitative and quantitative data serve different purposes. The best type of data to collect depends on
 - the research problem (exploratory, descriptive or causal)
 - the type of response you need (general or in-depth?)
 - the resources available (what can you realistically do?)



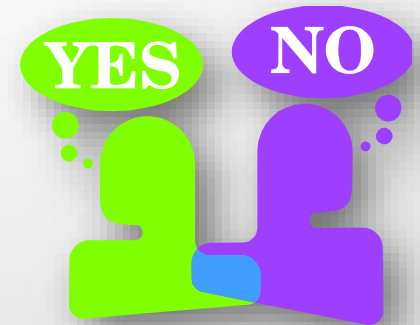
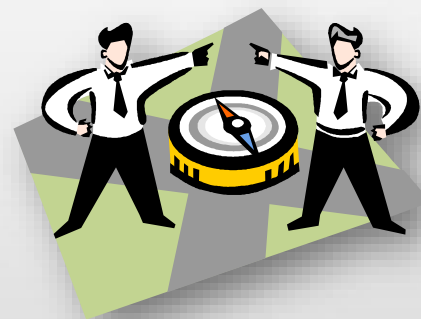
Choosing a Method of Data Collection

Methods are the research tools that allow you to implement your methodology

- Is your research descriptive, exploratory or causal?
- Will asking the question bias the answer?
- Can the question be answered by observation?
- Will knowing that research is occurring have an impact on what is recorded?
- Will knowing what research is about have an impact on responses?
- What type of data do you need to solve your research problem?

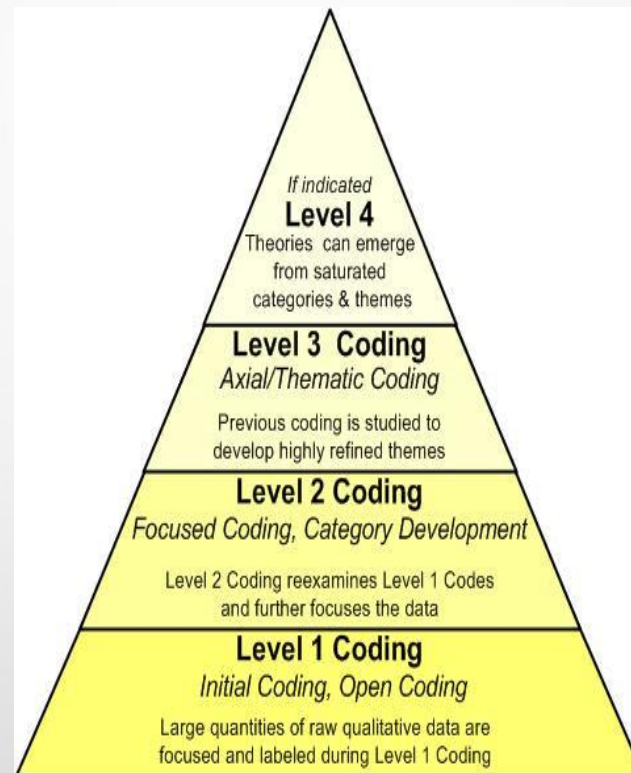
Characteristics of Qualitative Research

- In-depth, unstructured & unquantifiable information
- Attitudes, opinions, beliefs
- Small scale
- Holistic
- Flexible
- Context sensitive



Grounded theory

- a *research* that will enable you to develop a *theory* which offers an explanation about the main concern of the population of your substantive area and how that concern is resolved or processed.
- Holton, J.A. & Glaser, B.G., Eds. (2012). *The Grounded Theory Review Methodology Reader: Selected Papers 2004-2011*. Mill Valley, CA: Sociology Press.
- [grounded theory website](#)



Qualitative Methods

- Interviews
- Case studies
- Action research
- Focus groups
- Diary studies
- Observation
- Ethnographic Research



Interviews

- Key question: Be very clear ***why*** you are choosing interviews as a method for your research
- Interviews are always expensive in time; and sometimes expensive in travel
- The analysis of interview data is challenging and time consuming
- Interviews are not the 'easy option' if you fear the statistics of survey analysis – especially new researchers underestimate the challenges of interview analysis



When to use Interviews

- When you need to obtain detailed, in-depth information on complex situations (e.g. strategic analysis)
- When it is important to capture non verbal clues to gauge emotions
- In the planning phase for a survey in order to develop questions for the survey
- At the end of a quantitative project to add depth to the numbers, to be able to 'tell the story'

Interview approaches

- Unstructured interview. The interviewer uses a list of topics, rather than questions, to guide the interview
- Semi-structured interview. The interviewer has a list of questions and attempts to cover the same questions which is interviewee.
- Structured interview. Very similar to a survey but delivered face to face. The interviewer has a list of specific questions and most of these will be answered using tick boxes. Answers are largely prescribed.

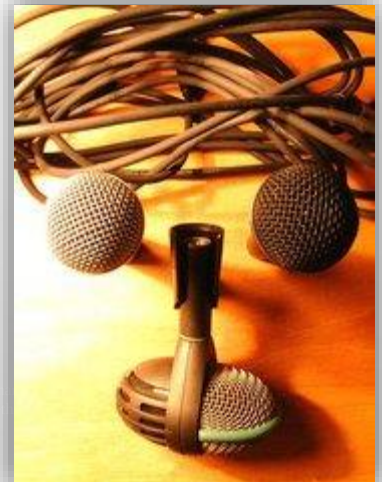
Interview Types	Ease of organising	Convenience researcher	Convenience interviewee	Cost	Ease of analysis	Type of information	Quality of information
In-depth interviews	Medium	Low/individual trips	High	Can be high	Medium	In depth personal opinions/attitudes/knowledge	High
Expert interviews	Low/challenging	Low/individual trips	High	Often high as travel may be required	Medium	Expert insights	High
Group interviews of experts or managers	Low/challenging	Low/individual trips	Medium as coordination between individuals is required	More cost effective than individual interviews	Low	Expert insights – but can be contradictory	Can be high but sometimes experts 'cancel each other out'
Focus group interviews	Very challenging	Medium/capture of a group of respondents	Medium/low, a lot of coordination is required	More cost effective than individual interviews	Low/challenging to transcribe	Insights from a number of people on the same topic	Depends on group dynamics, can be very high but also very low
Telephone interviews	Relatively easy	High	High	Low	Medium	In depth personal opinions/attitudes/knowledge	Medium/less personal rapport
Visual online interviews	Relatively easy	High	High	Low	Medium	In depth personal opinions/attitudes/knowledge	Medium/less personal rapport
Text-based online interviews	Easy	High	High	Low	High	Some personal opinions/attitudes/knowledge	Low/responses lack detail

Sampling and access

- Who will you ask? Are they the 'right' respondents? Can they answer your questions meaningfully? (e.g. a researcher dealing with McDonald's strategies should aim to interview senior managers, not shop floor employees)
- If you need many respondents, such as customers or students, how will you find a representative sample? Make sure your sample reflects your overall research population
- ***The single biggest issue with interview research is failed access*** – ensure very early on that your access is clarified, consent has been obtained and dates have been fixed in writing. Do not rely on verbal promises !

All Face to Face Interviews

- Rapport between respondent & interviewer needed
- Body language can be observed
- Expensive in cost and time
- Interviewer bias



Telephone and Text-based Online Interviews

- Inexpensive
- Fast
- Less interviewer bias
- Less personal rapport
- Body language cannot be observed



Issues to look out for

- Interviewer bias
- Common understanding of study
- Confidentiality
- Confidence in subject matter or experience
- Use of jargon
- Professional rather than personal interaction



More issues...

- Judging responses
- Body language
- Inconsistencies in the data
- Informal chats before and after the interview – can give you the most valuable information
- Recording – audio recording versus note taking



Case Studies

- Intensive investigation of an individual or an organisation
- Reliance on anecdotal evidence
- Much cheaper than large-sample research
- Detailed information
- Absence of controls

Observation

- Variably intrusive: How far intrude?
 - Participant/non-participant
 - Covert/overt
- Can be used qualitatively and quantitatively
- Can provide valuable data especially for triangulation but often raises ethical issues
- Be prepared to be challenged



Ethnography and netnography

- Originating in anthropology, this term traditionally refers to a practice in which researchers spend long periods living within a culture in order to study it.
 - (<http://www.aqr.org.uk/glossary/?term=ethnography> 2013)
- Therefore research is in a groups 'own environment'
- Time consuming but produces great detail
- Normally researching socially produced 'answers'
- Robert Kozinet adapted this research method in the early 1990 for marketing and consumer research by replacing traditional traditional, in-person participant observation techniques of anthropology with the study of interactions and experiences online (Kozinets 1998).
- Now widely used throughout the social sciences, analyses and interprets online behaviours.

Action research

- Initiated by Kurt Lewin (1946) MIT
- Action research involves the process of actively participating in an organization change situation whilst conducting research (Cameron & Price, 2012).
- “Action research is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out”
 - (Carr and Kemmis 1986: 162 cited in <http://www.infed.org/research/b-actres.htm> 2013).
- Declined in importance in the 60s but becoming increasingly important, especially in educational research (Stringer, 2007)

Action research

- Cyclic process of action, research and evaluation
- Problem focused
- Context specific
- The researcher participates in the change process



Action Research Spiral



Source: Adapted from Coghlan and Brannick (2001), p. 19; Cardno and Piggot-Irvine (1996), p. 19

1. Johnson, A. P. (2007) *A short guide to action research*.
2. Smith, M. K. (2013) 'Action research', *the encyclopedia of informal education*, www.infed.org/research/b-actres.htm.
3. Stringer, E. T. (2007) *Action Research: A handbook for practitioners*

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



Why is the Questionnaire necessary?

- One overall aim (e.g. customer satisfaction)
- No more than three objectives (e.g. intention to revisit, customer experience, overall satisfaction)

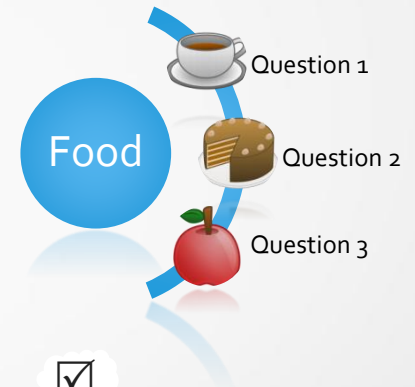


*Too many aims/objectives =
poor survey*

An **effective** questionnaire...

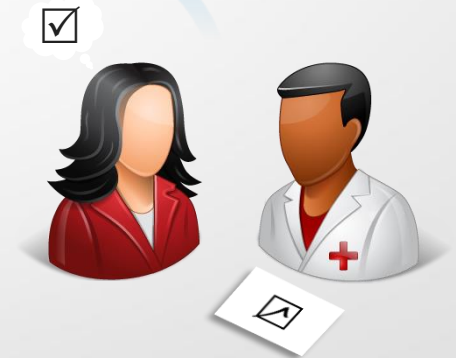
Asks relevant questions

- Questions that will provide the answers to the research topic in question



Gets valid responses

- Responses given reflect the respondent's actual opinions

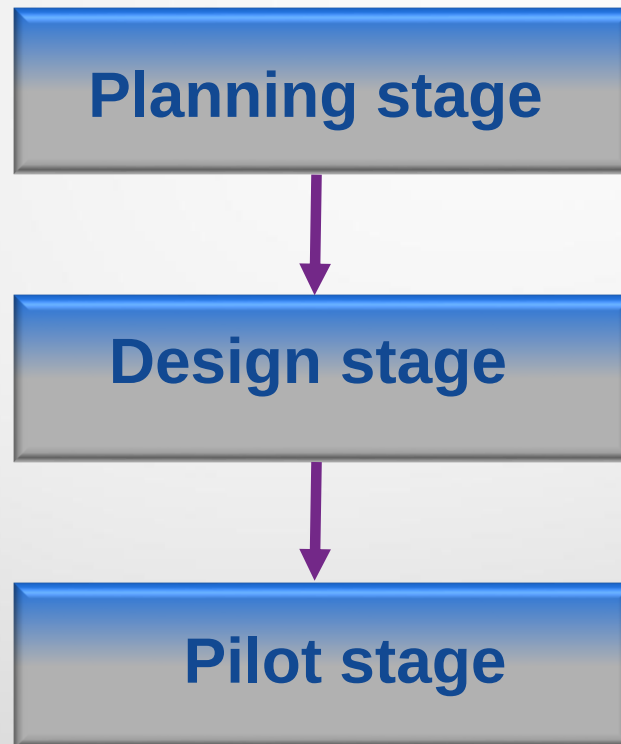


Gets a representative response

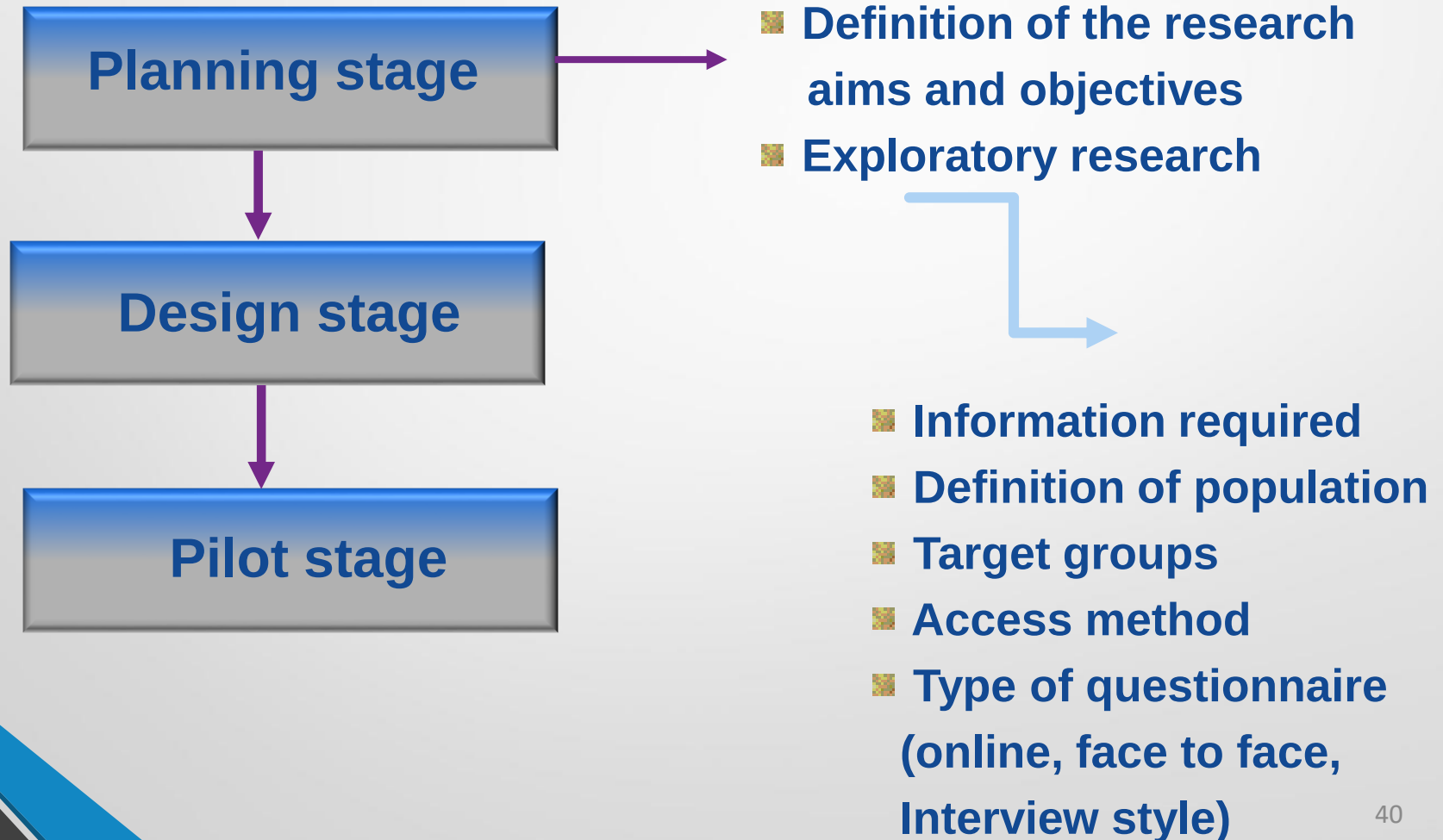
- Makes it more reliable to infer the findings to wider population



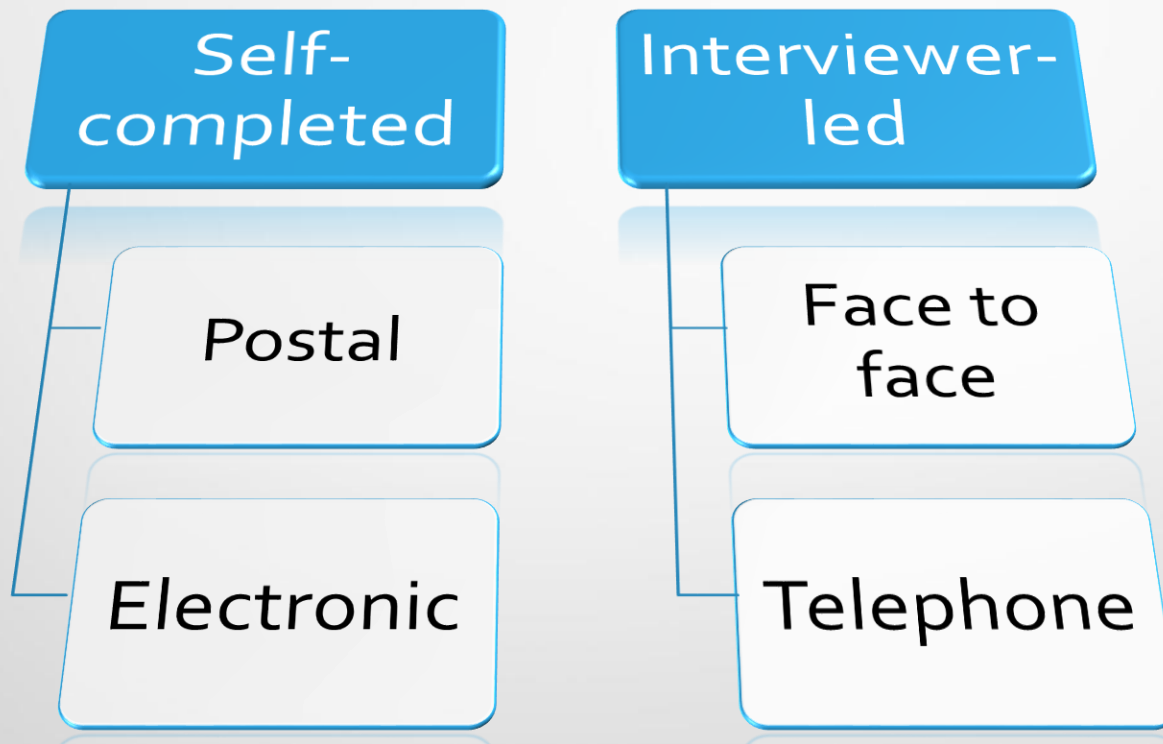
Stages in the Development of a Questionnaire



Stages in the Development of a Questionnaire



Types of questionnaire



No method consistently outperforms others

Considerations

- 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

Who Are your respondents?

1. I know why I needed to see the therapist today.

2. I know how the therapist is going to help me.

3. The therapist showed me what I can do to help myself.

4. The therapist listened to me and how I feel.

5. I was able to have a good look around the Space Centre before/after my appointment.

Thank you for completing this questionnaire.
Please return this form to a member of Healthcare staff working here today.

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	☒	☒	☒

Is it pitched at the right age group?

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

More considerations

- Will it 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

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)

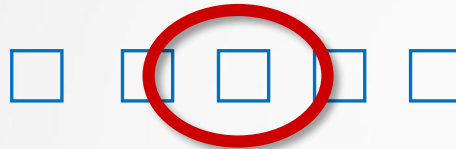
Interval questions – the answer categories have an order with a specific interval (e.g. Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree) Sometimes that even interval is assumed!

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

Mid-point / neutral opinions

Strongly
disagree



Strongly
agree

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

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

Double questions

If a question can be broken down into parts then it should be?

Is space and storage adequate?

☐ Yes ☐ No

Was the consent of the patient obtained and recorded?

☐ Yes ☐ No

Was the consent of the patient:

☐ Obtained?

☐ Recorded?

Double negatives/leading questions

Do you think that it is an unwise policy to continue sending food aid to Africa.

☐ Yes ☐ No

- If the respondent has to tick 'No' to give a positive response then this can be considered a double negative.
- The question suggests the answer.
- Try and phrase questions with a positive slant so that the positive response is 'Yes' rather than 'No'.

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 questions.
 - But – try and put important questions in before the end.

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'.

Common Issues

What might be wrong with this question?

What was the first drink you had today?

- ☐ Tea
- ☐ Coffee
- ☐ Water
- ☐ Juice
- ☐ Haven't had a drink today

Common Issues

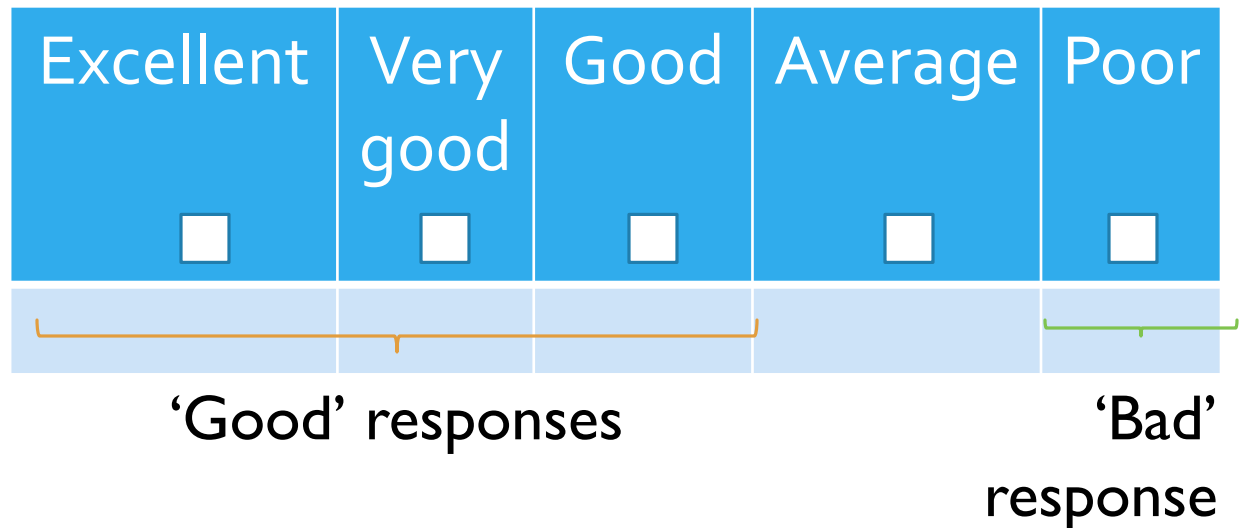
What might be wrong with this question?

What is your age

0-18	18-30	30-45	45+
☐	☐	☐	☐

Common Issues

What did you think about the waiting time?



What might be wrong with this question?

Common Issues

What might be wrong with this question?

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
☐	☐	☐	☐	☐

What might be wrong with this question?

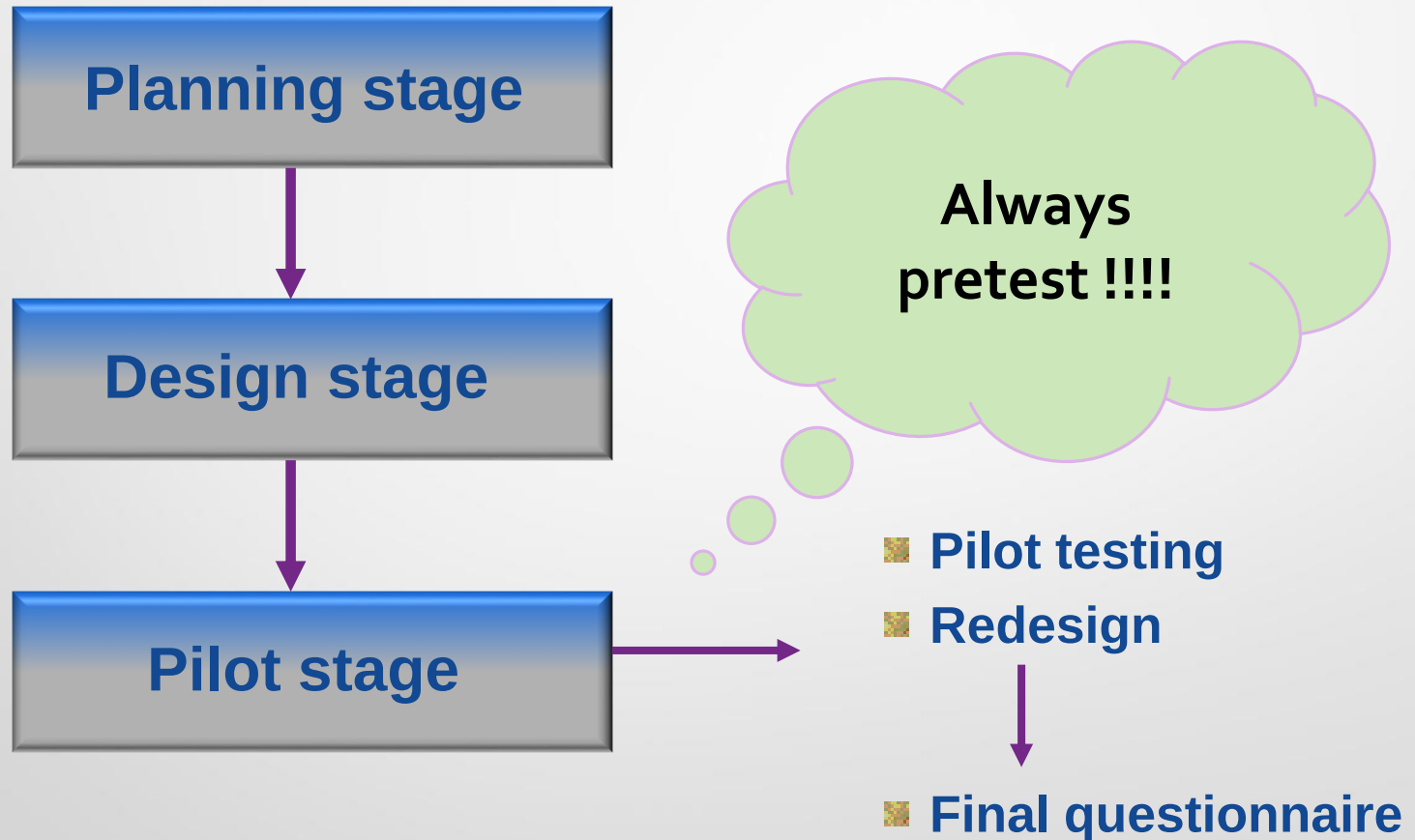
Common Issues

Do you have any problems with your line manager?

What might be wrong with this question?

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

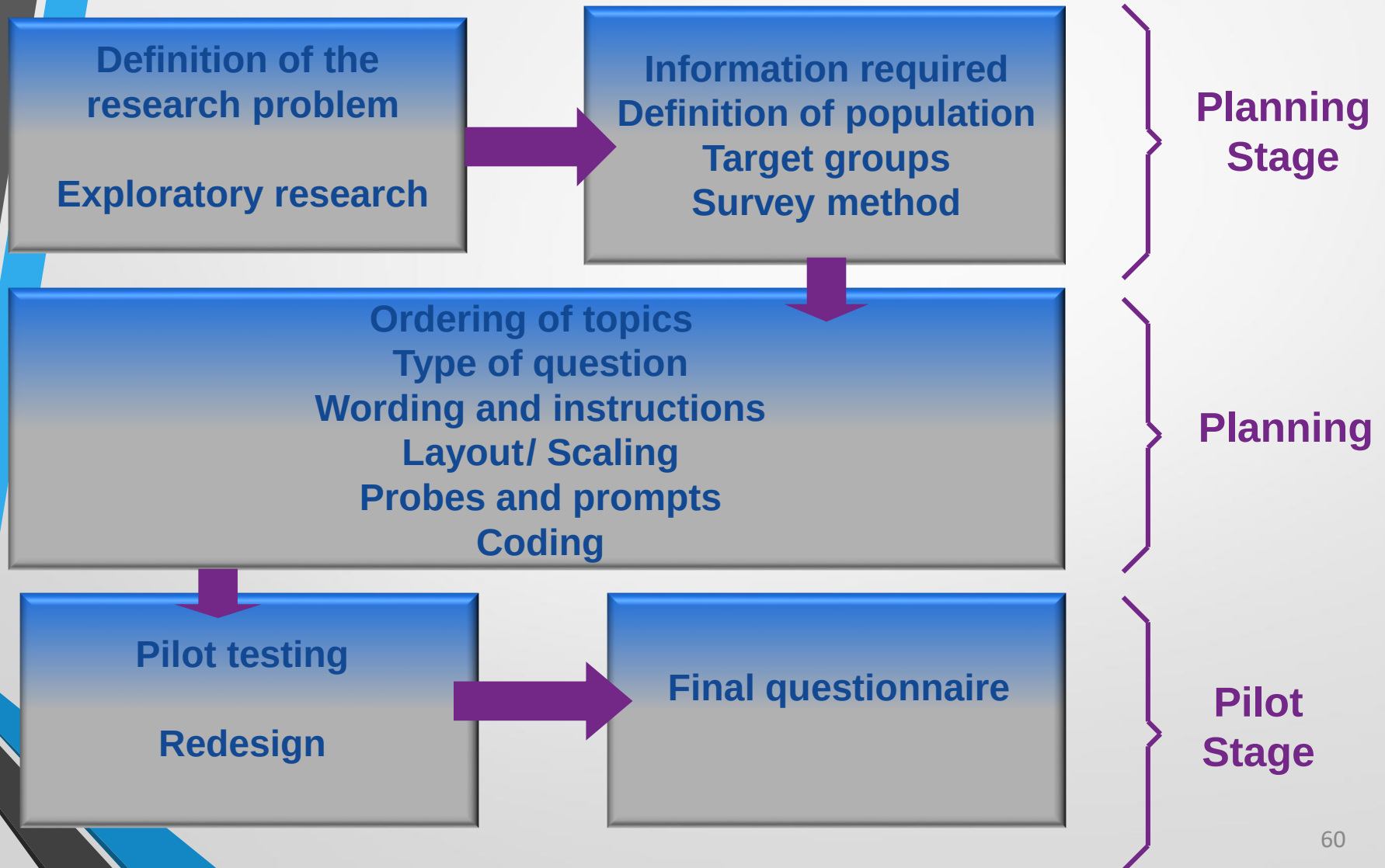
Stages in the Development of a Questionnaire



Pilot your tool

- This is the **MOST IMPORTANT** part.
- If a range of respondents from different backgrounds will be using the questionnaire make sure you use as many of these different groups as possible in the trial.
- Go back to your objectives – does the data help you fulfil your objectives and measure against the standards you set?

Summary: Stages in the Development of a Questionnaire



Acknowledgement

I gratefully acknowledge the work of Craig Parylo and Annette Lee who have given permission to use/adapt some of their slides as part of this session.

Their full set of slides can be found at
http://www.leicspart.nhs.uk/library/clinicalaudit_questionnaires/slides.pptx

Summary

- Research can be exploratory, descriptive or casual
- Research can be primary or secondary in nature
- The research approach can be quantitative or qualitative
- Qualitative research uses small samples and probes deeply
- Quantitative research uses large samples, is more generalisable but often cannot answer 'why' questions easily