



ECDE7002 Introduction to Research Methods in Education

Research Tools (I)

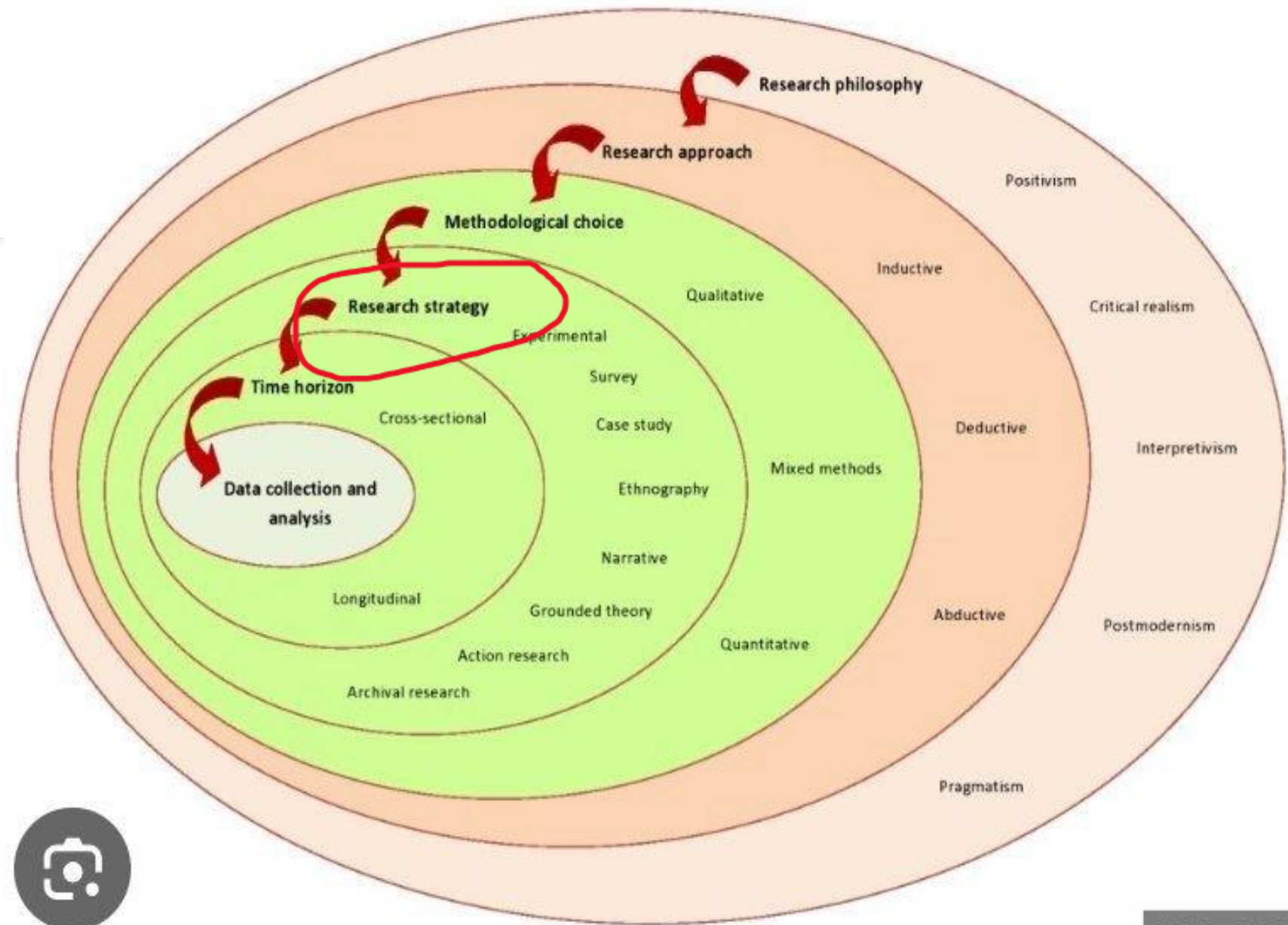




Aims of the session

- To consider how to choose the right research tools
- To examine the use of questionnaires and observations as research tools
- To identify appropriate research tools for own research questions

The Research Onion



TASK DESCRIPTION

Assessment Component 2 – 45%

Written Assignment: (3500 words).

Exemplar: Outline your preferred approach (qualitative/quantitative/mixed methods) to this enquiry by focusing on ONE of your research questions. Plan an appropriate data collection process and associated analysis of the data, reflecting on its strengths and limitations. Critically reflect upon the ethical issues surrounding the research process.



Task

- Select one of your research questions and paste it into the chat.
- We will be returning to your question as we move through the session.

Questionnaires





Depending on the nature of the questions, questionnaires can be classified as:

Quantitative

- Answers obtained through closed ended questions with multiple choice answer options are analysed using quantitative methods and they may involve percentages, pie-charts and bar charts.

Qualitative

- Answers obtained to open ended questions are analysed using qualitative methods and they involve discussions and critical analyses without use of numbers and calculations.

Reflection

- What are the strengths and limitations of using questionnaires as a research tool?



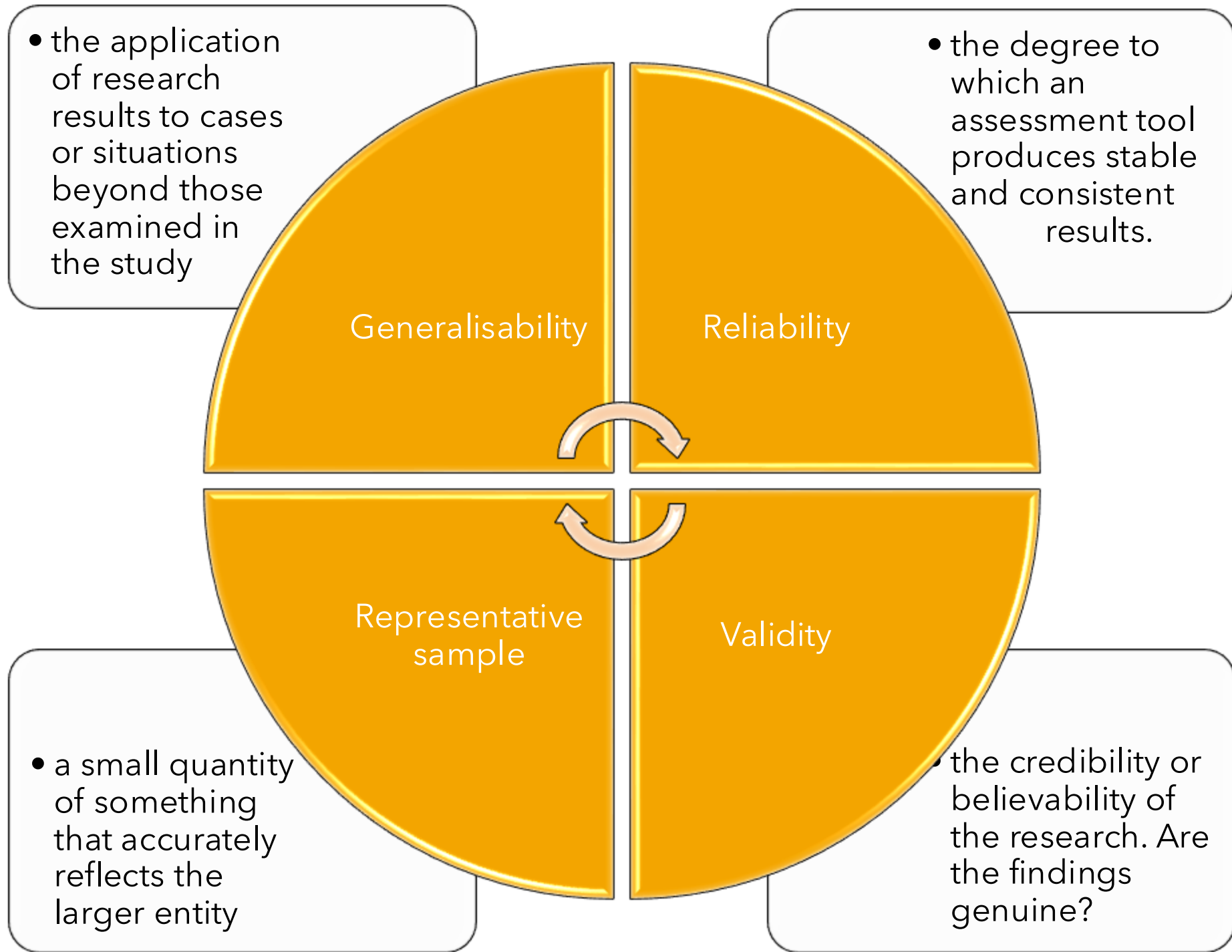
Questionnaires

Strengths

- Practical
- Large amounts of information can be collected quickly
- Can be carried out by many people with limited effect to its validity and reliability
- Results can be quickly and easily quantified
- Can be analysed easily and objectively

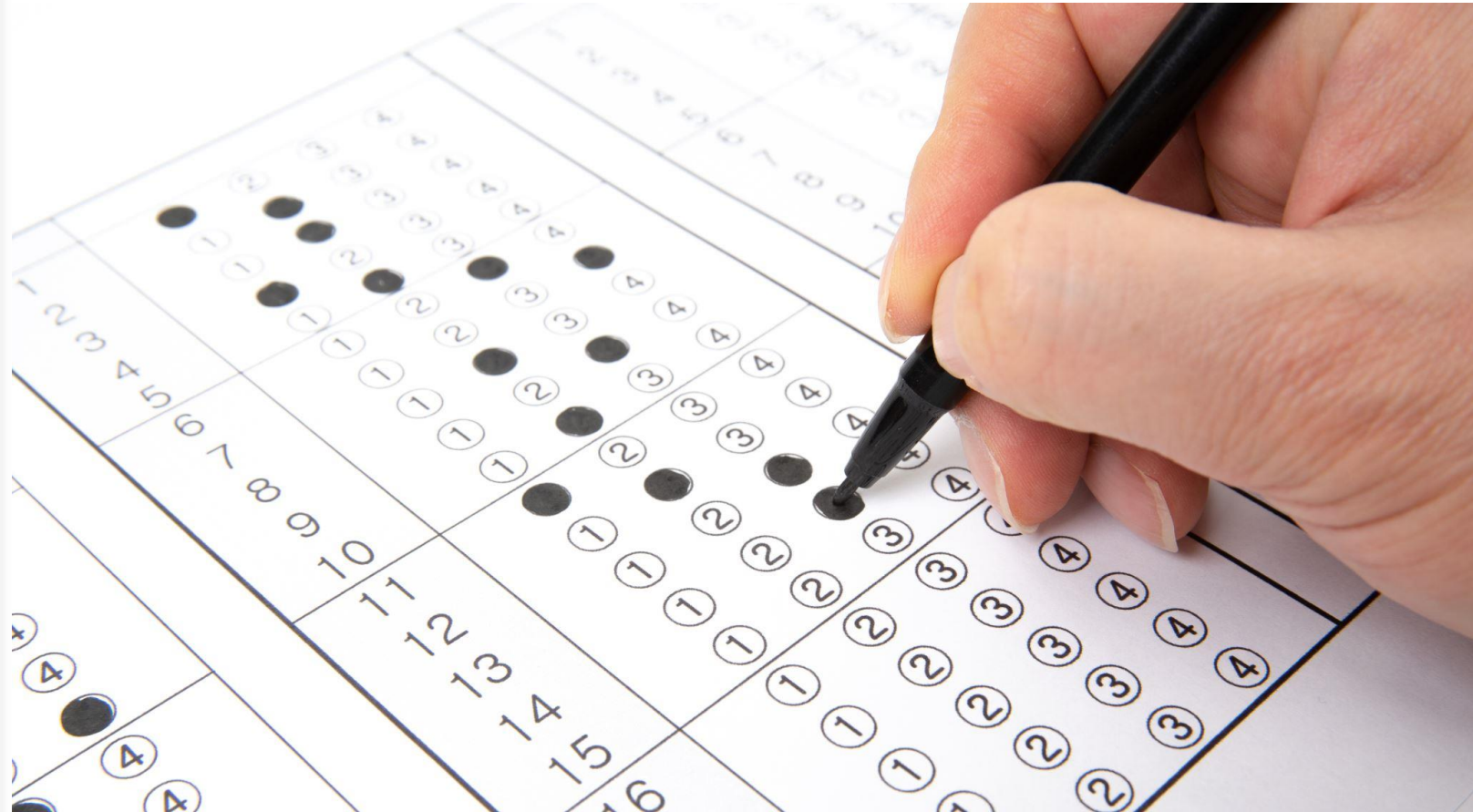
Limitations

- Difficult to understand some forms of information
- No way of telling how truthful a respondent is being
- No way of telling how much thought a respondent has put in
- People answer based on their interpretation of the question (e.g. good, poor, difficult)
- Can lack validity depending on interpretation of respondent



WRITING A QUESTIONNAIRE

Brace (2018)



Open questions

- ⊕ Open questions may produce unexpected results.
This can make the research more original and valuable.
- ⊖ However, it is difficult to analyse the results of the findings when the data is obtained through open questions.



Closed questions

- The respondents are given a list of predetermined responses from which to choose their answer.
- The list of responses should include every possible response, and the meaning of the responses should not overlap.
- A Likert scale is a commonly used set of responses for closed questions.



Agreement

Strongly agree

Agree

Undecided

Disagree

Strongly disagree

Frequency

Very frequently

Frequently

Occasionally

Rarely

Never

Examples
of Likert
Scales

Importance

Very important

Important

Moderately important

Of little importance

Unimportant

Likelihood

Almost always true

Usually true

Occasionally true

Usually not true

Almost never true

Dichotomous Questions

This type of questions gives two options to respondents to choose from:

yes / no

agree / disagree.

It is the easiest form of questionnaire for the respondent in terms of responding to it.



Multiple choice questions

Respondents are offered a set of answers they have to choose from.

+

= easy to complete.

However, if there are too many answers to choose from, it can make the questionnaire boring.

-

Best Multiple Choice Ever?

Which answer is correct?

1. All of the below.
2. None of the below.
3. All of the above.
4. One of the above.
5. None of the above.
6. None of the above.

Scaling / Ranking Questions

They present an option for respondents to rank the available answers to the questions on the scale of given range of values (for example from 1 to 10).

On a scale of 1 to 5, how satisfied are you with the overall performance of our software?

1	2	3	4	5
Not at all satisfied				Extremely satisfied

Please rank the following in order of importance from 1 to 4 where 1 is most important to you and 4 is least important to you

Speed of Service	
Ease of Parking	
Cleanliness	
Friendliness of Staff	

Points to consider

Social desirability – individuals may lie to put themselves in a positive light

Anonymity – can reduce social desirability bias



Task

- In your breakout rooms, identify one research question that could be answered using a questionnaire and outline the type of questionnaire you would use and why.
- Be prepared to feedback to the main group

Observations





Observation

It is part of a teacher/lecturer's role

You can see things in their natural context

You can see things that may escape conscious awareness

You can learn about things that people may be unwilling to talk about

It can be inconspicuous and part of normal classroom routine

It can be the least intrusive of all methods

Research Evidence: Can observers spot **good teaching**?

Strong et al. (2011) used value-added scores to identify 'effective' and 'ineffective' teachers, showed videos of them teaching to observers and asked them to say which teachers were in which group.

What do you think the figures showed?

Strong, M., Gargani, J. & Hacifazlioglu, O. (2011) Do We Know a Successful Teacher When We See One? Experiments in the Identification of Effective Teachers. In Journal of Teacher Education, Volume: 62 issue: 4, page(s): 367-382

The study found that:

In the experiments where the observers were not trained in observation, the proportion correctly identified by experienced teachers and head teachers was below the 50% that would be expected by pure chance.

At this level of accuracy, fewer than 1% of those judged to be 'Inadequate' are genuinely inadequate; of those rated 'Outstanding', only 4% are actually outstanding.

Overall, 63% of judgements will be wrong.

The authors concluded that:

(a) observers, no matter how experienced, are unable to identify successful teachers



(b) certain cognitive operations may be contributing to this outcome

How can the research evidence be so out of line with our intuition?

- Observation produces a strong emotional response (is it difficult not to think about what we 'would have done'?);
- Learning is invisible (can we 'see' when / what pupils are learning?);
- We assume that if you can do it, you can spot it (can you describe everything you do explicitly?);
- We don't believe that our observation can miss things (in-attentional blindness).

WHAT CAN BE OBSERVED ...





What can be observed?

- Human behaviour
- Physical actions and interactions
- Verbal behaviour
- Expressive behaviour
- Spatial locations
- Temporal patterns
- Physical objects

HOW CAN WE
OBSERVE?



How can we observe?



QUALITATIVE
OBSERVATION



QUANTITATIVE
OBSERVATION

How can we observe?

Qualitative observations...

involve observing people, events, or physical characteristics in their **natural setting**.

They are made when you use your senses to observe the results.

Quantitative observations...

could be made with instruments such as rulers, cylinders, beakers and thermometers.

These results are measurable.

OR.....

Quantitative observations...

Quantitative observation is used when the researcher wants to be able to numerically describe the phenomenon (Ellis, 2022)

could include **systematic observation** - used to count how often a particular phenomenon is observed.

The items and the manner of the observation are well defined; e.g. using a tick-box system or assigning a score to the observation.

Observations were recorded every 15 seconds and placed into behavioural categories					
Intensity	Proximity and contact seeking	Contact maintaining	Proximity and interaction avoiding	Proximity and interaction resisting	Searching
1					
2		✓			
3					✓
4	✓✓				
5					✓
6	✓				
7		✓			✓

Types of Observation

Structured

Sometimes we have something specific we want to observe - leadership skills; level of participation etc.

We use a structured, preset guide (schedule) of what to observe or a checklist.

Looking for

Unstructured

Sometimes we want to see what is naturally occurring or exists without predetermined ideas. We use have an open-ended approach to observation and record all that we observe.

Looking at

Observing what does not happen may be as important as observing what does happen.

Your role in observation

A choice between:

Overt observation = those being observed are aware of the fact that they are being observed.

Covert observation = the participants are unaware that they are being observed.

If you are an overt, non-participant observer (i.e. 'fly-on-the wall'), how will you deal with interested participants?



OBSERVATION



STRENGTHS



LIMITATIONS

Advantages of Observation in Research

Provides the researcher the opportunity to watch what people actually do rather than relying on reports of what they **say** they do.

Can avoid biasing factors e.g. those caused by an interviewer.

Limitations of Observation Research



Only behaviour and physical personal characteristics can usually be examined. The researcher does not learn about motives, attitudes, intentions, or feelings.



Can be time consuming if the observed behavior occurs rather infrequently.



Interpretation of data may be a problem.



Possible invasion of privacy.

Observation schedules

Observe the length of time that the participant spends interacting with each separate child on the playground. Observe the same child for 10 minutes total. If a child returns to interact with another child they have interacted with before, record the time under Time 2, Time 3, etc. To do this, list an identifying characteristic of each child in the blank.

S/No	Child Identification	Time 1	Time 2	Time 3	Time 4	Total
1	Girl with pony tail	1:15	2:38			2:43
2	Boy with cap	2:07				2:07
3	Short girl with smile	3:06				3:06
4						
5						
6						
7						

Teacher Questioning Observation Schedule

Observe a classroom for thirty minutes exactly. Classify each question a teacher asks into the following categories.

S/No	Type of Question	Frequency	Total
1	Yes/No questions		5
2	Require repeating a statement that was just said by the teacher		12
3	Question requiring one or two-word answer		8
4	Open-ended question requiring longer answer		1

Observer Effect

- The presence of an observer can have a considerable effect on the behaviour of those being observed.
- Explaining to a participant what you are doing may affect their behaviour
- Behaviour or 'act'?

Roethlisberger and Dickson (1939)

Hawthorne effect - the presence of an observer increased productivity at the Hawthorne electrical works, Chicago





Observer Bias

- Certain attitudes may bias what you “see”
- Observer expectations
- Observer emotions

Steps in planning for observation

- **WHO:** Decide who will be observed.
- **WHY:** Establish why they are selected
- **WHAT:** Determine aspects that will be observed (characteristics, attributes, behaviours, etc.)
- **WHEN:** Determine when observations will be made.
- **WHERE:** Determine where observations will be made
- **HOW:** Develop the observation schedule
- **HOW:** Pilot / test the observation schedule
- **DO:** Conduct the observations
- **SO?:** Analyse and interpret the collected information.
- **SHARE:** Write up your findings.





Task

- In groups select a research question from the chat (or select one of your own) which you feel could be answered through observation and outline a brief observation schedule.
- Be prepared to feedback to the group.

References/further reading

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