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SESSION 5: BEING A SKILLED RESEARCHER (1) | ECAD7004

AIMS OF THE SESSION

To consider:

- * Research tools:

- questionnaires
- interviews

- * Sampling techniques

- * Reliability and validity of research tools





QUESTIONNAIRES

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 pie-charts, bar-charts and percentages.

qualitative

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

QUESTIONNAIRES



Positive points?



Negative points?

QUESTIONNAIRES

Strengths

Limitations

DISCUSSION POINTS

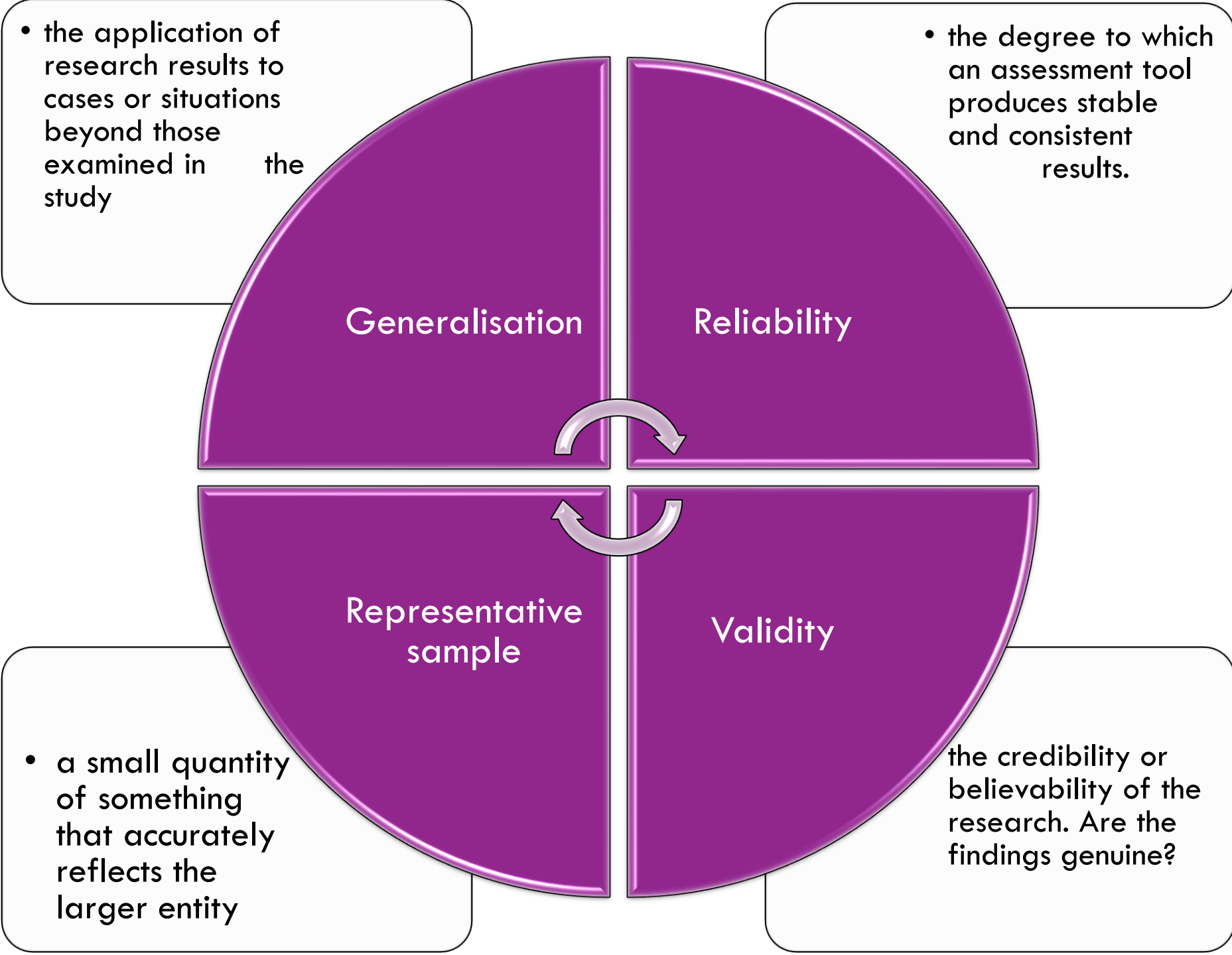


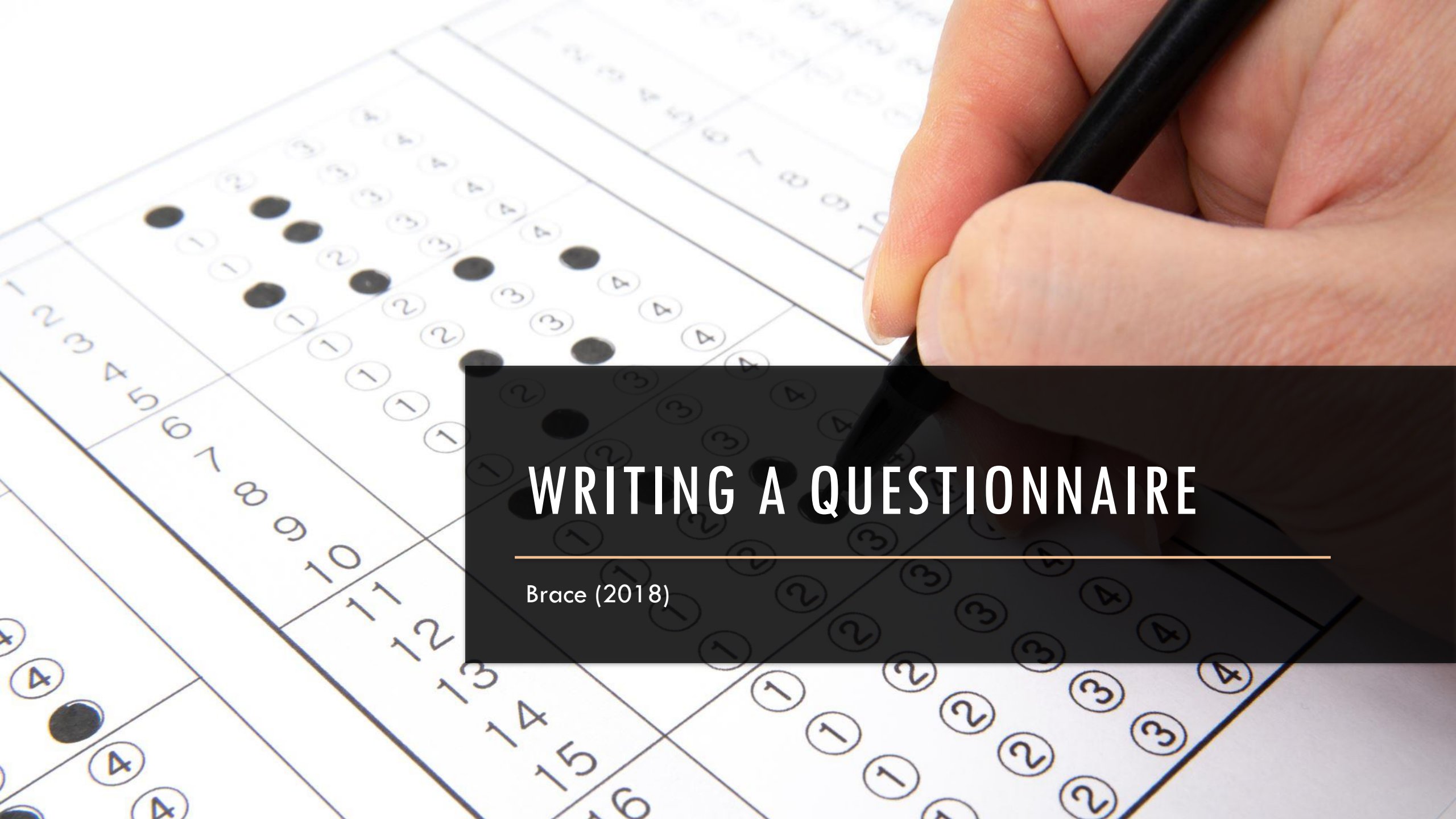
- ☐ Reliability

- ☐ Validity

- ☐ Representative sample

- ☐ Generalisation



A close-up photograph of a hand holding a black pen, writing on a questionnaire form. The form features a grid of numbered circles (1, 2, 3, 4) arranged in rows and columns. Some circles are already filled with black ink. The background is slightly blurred, showing more of the form and the hand.

WRITING A QUESTIONNAIRE

Brace (2018)

FORMING QUESTIONS

Youngman (1982) identified 7 question types:

1. Verbal / Open
2. List
3. Category
4. Ranking
5. Quantity
6. Grid
7. Scale

Consider which one of these you have experienced yourself and what you might be drawn to in your own questionnaire



YOUR RESEARCH, YOUR QUESTIONNAIRE...

Look at your research question again.

Consider what you want to achieve from your own questionnaire.

OPEN QUESTIONS

Open questions differ from other types of questions used in questionnaires in a way that open questions may produce unexpected results, which 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 the questionnaire with 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



LIKERT SCALE

Example 1: How satisfied were you with your stay at our hotel?

1. Very dissatisfied.
2. Somewhat dissatisfied.
3. Neither satisfied nor dissatisfied.
4. Somewhat satisfied.
5. Very satisfied.

Example 2: Which image best describes your experience with our product?



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 - yes or no - to choose from.

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



MULTIPLE CHOICE QUESTIONS

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

The downside of questionnaire with multiple choice questions is that, if there are too many answers to choose from, it can make the questionnaire boring.



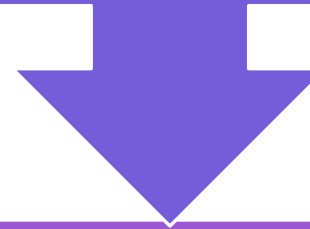
SCALING / RANKING QUESTIONS

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).

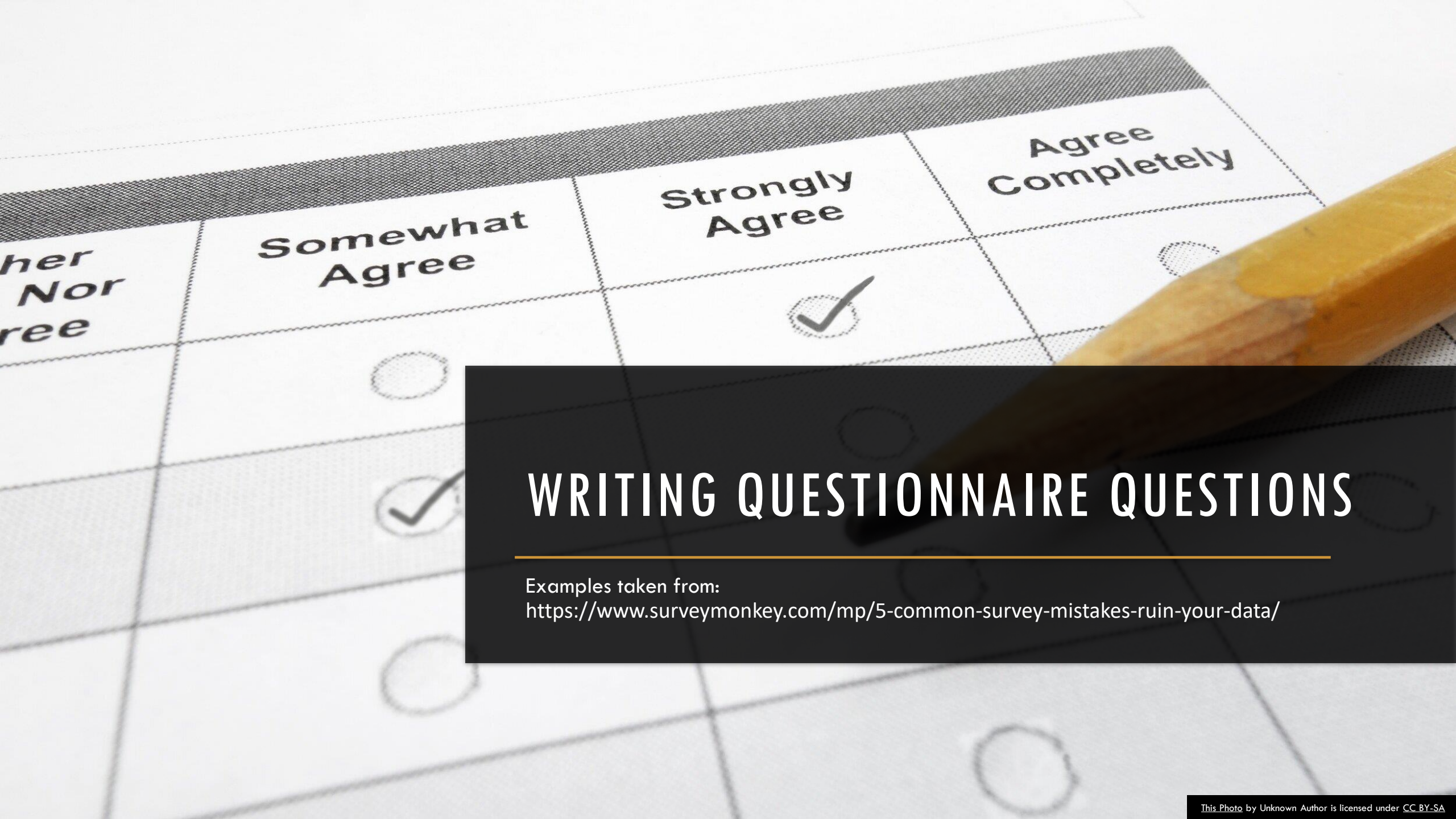


POINTS TO CONSIDER

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



Anonymity – can reduce
social desirability bias



her
Nor
ree

**Somewhat
Agree**

**Strongly
Agree**

**Agree
Completely**



WRITING QUESTIONNAIRE QUESTIONS

Examples taken from:

<https://www.surveymonkey.com/mp/5-common-survey-mistakes-ruin-your-data/>

WRITING QUESTIONS

Bell & Waters (2014) highlight a range of potential difficulties in wording your questions, including ambiguity and imprecision, assumptions, memory, knowledge, double questions, leading questions, presuming questions, hypothetical questions, offensive questions, and questions covering sensitive issues.

Consider the class you will be focusing on.

How will you write the questionnaire to make it appropriate and accessible?

WRITING QUESTIONS

Avoid leading questions:

Bad Question: How short was Napoleon?

Good Question: How would you describe Napoleon's height?

If the question is rewritten to be neutral-sounding, it can eliminate the leading bias.



WRITING QUESTIONS

Avoid loaded questions

Bad Question: Where do you enjoy drinking coffee?

Some people dislike coffee and, therefore, can't answer the question.



WRITING QUESTIONS

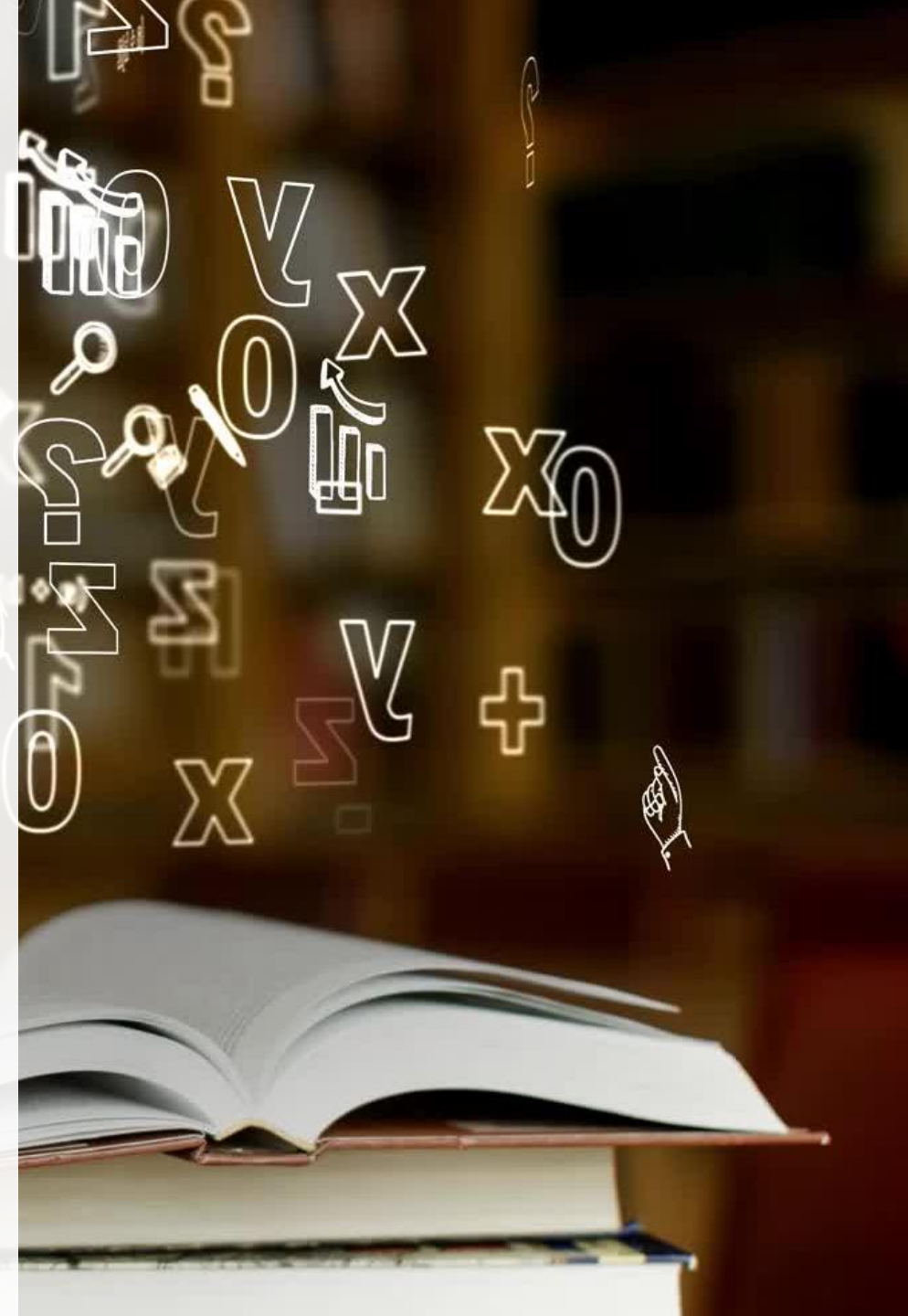
Stay away from double-barreled questions

Bad Question: How useful will this textbook be for students and newly qualified teachers?

Better Questions:

How useful will this textbook be for students?

How useful will this textbook be for newly qualified teachers?



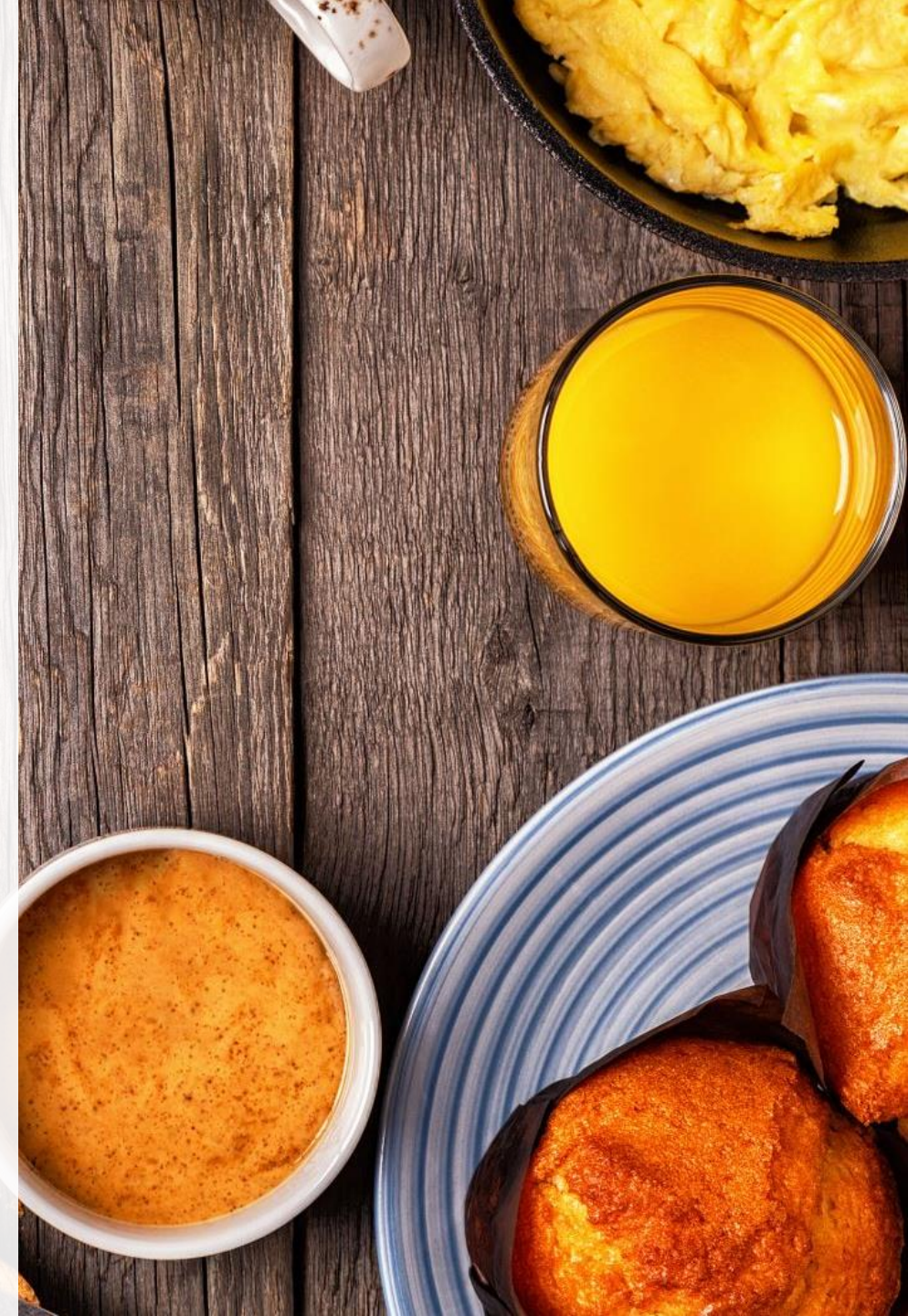
WRITING QUESTIONS

Avoid absolutes in questions

Bad Question: Do you always eat breakfast? (Yes/No)

Better Question: How many days a week do you usually eat breakfast?

Are there still issues with this?



QUESTION TESTING - EXAMPLE 1

Do you have a personal computer (PC) at home?

(Tick one box)

Yes

☐

No

☐

QUESTION TESTING - EXAMPLE 1 REVISED

Do you or your family have a computer at home?

(Tick one box)

Yes

☐

No

☐

QUESTION TESTING - EXAMPLE 2

How often, if ever, are you punished at school; e.g., detention, sent to see the head teacher, sent out of the classroom?

Never

☐

Rarely

☐

Sometimes

☐

Often

☐

QUESTION TESTING - EXAMPLE 2 REVISED

In the last four weeks, how many times have you been punished at school?

Never

☐

Once or twice

☐

Three or more times

☐

A man with short dark hair, wearing a white dress shirt and a dark blue tie, is seated and smiling while talking to two young girls. The girl on the right is wearing a teal jacket over a blue shirt and is gesturing with her hands. The girl on the left is wearing a pink and grey striped shirt. A young boy in a blue hoodie is seen from the back, also seated. The background is a bright, out-of-focus classroom with large windows.

INTERVIEWS

INTERVIEWS

An 'interview' is typically a face-to-face conversation between a researcher and a participant involving a transfer of information to the interviewer (Creswell, 2012).

Three types:

- Structured
- Unstructured
- Semi-Structured

STRUCTURED INTERVIEWS...

are a **quantitative** research method where the interviewer a set of prepared questions in the form of an interview schedule which he/she reads out exactly as worded.

Interview schedules have a standardised format which means the same questions are asked to each interviewee in the same order.

STRUCTURED INTERVIEWS EXAMPLE

Q1 Can you tell me about the way in which you use IT in your work?

Q2 What do you believe are the advantages and disadvantages of using IT?

The interviewer will not deviate from the interview schedule (except to clarify the meaning of the question) and will not probe beyond the answers received.

UNSTRUCTURED INTERVIEWS...

have no set questions. Instead, the interviewer asks open-ended questions based on a specific research topic and will try to let the interview flow like a natural conversation. The interviewer modifies his or her questions to suit the candidate's specific experiences.

More like a 'guided conversation' than a strict structured interview.

UNSTRUCTURED INTERVIEW EXAMPLE

Good morning. I am carrying out some research on teachers' use of IT in their work. Would you tell me how you do this?

SEMI-STRUCTURED INTERVIEWS...

are widely used in qualitative research. They take a slightly more open-ended approach than a structured interview.

The questions are loosely structured and give interviewees more opportunities to fully express themselves.

The unstructured part of semi-structured interview gives participants more space to ask for clarification on answers and to express free flow of thoughts, so the interviewees normally feel less stress during the interview.

SEMI-STRUCTURED INTERVIEWS...

Main question here.

Q1 Can you tell me about the way in which you use IT in your work?

- Do you use specific programmes?/apps?/software?
- Do you use these for specific purposes?
- Is there a reason why you like / don't like?

Pre-prepared sub-questions here.

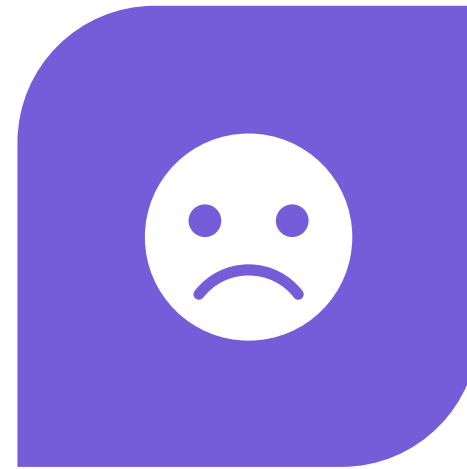
Q2 What do you believe are the advantages and disadvantages of using IT?

- You have spoken about several advantages. Are there any disadvantages? For yourself? For your students?

SEMI-STRUCTURED INTERVIEWS



POSITIVE POINTS?



NEGATIVE POINTS?

SEMI-STRUCTURED INTERVIEWS

Strengths

Limitations

- the application of research results to cases or situations beyond those examined in the study

Generalisation

- the degree to which an assessment tool produces stable and consistent results.

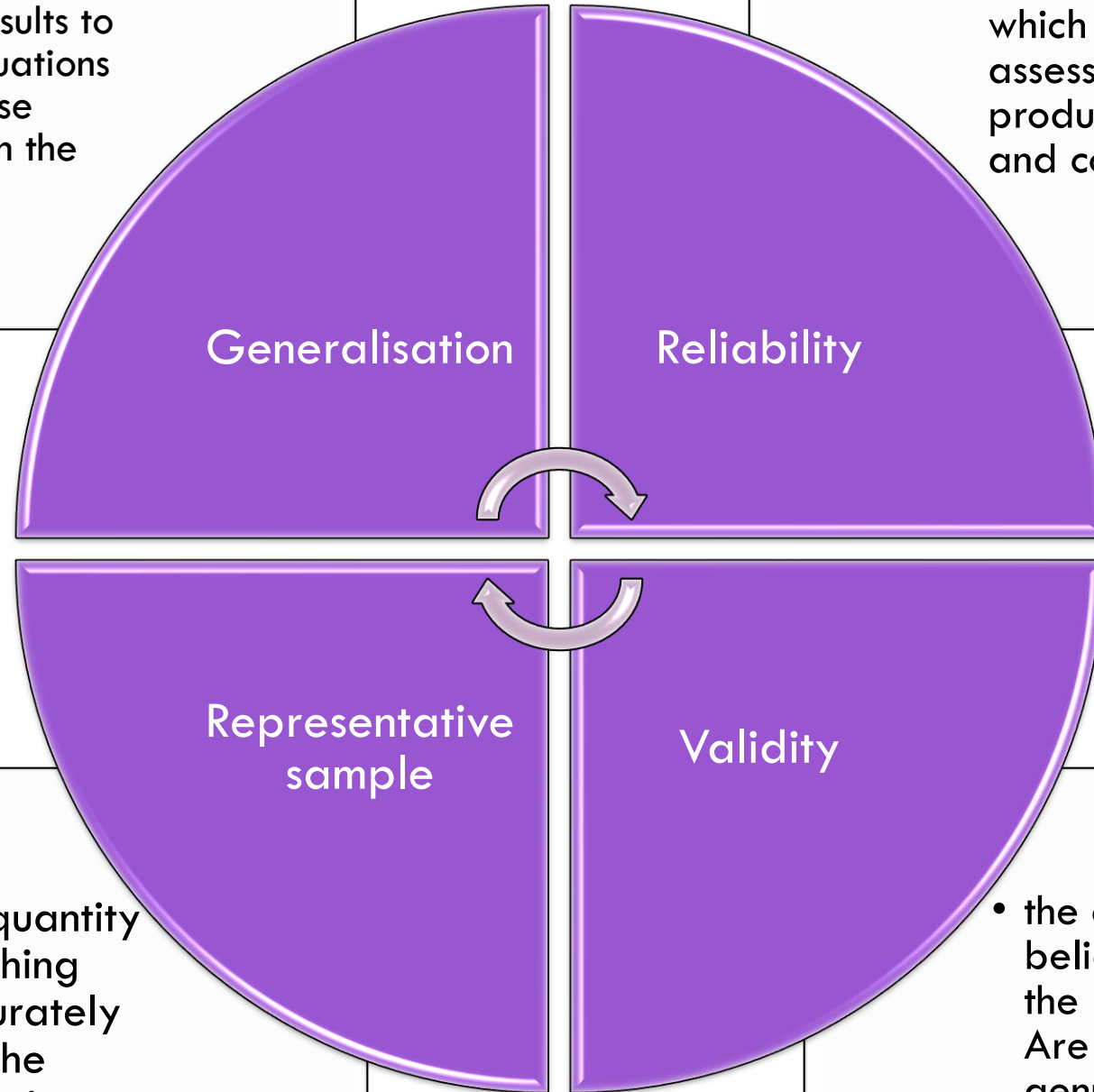
Reliability

Representative sample

- a small quantity of something that accurately reflects the larger entity

Validity

- the credibility or believability of the research. Are the findings genuine?



ISSUES WITH VALIDITY



The researcher has no real way of knowing if the respondent is lying.

The respondent may not consciously lie but may have imperfect recall.

An interview can sometimes be a “second chance” to do something; having been given the time to reflect on something they did, the respondent tries to make sense of their behaviour by rationalising their actions. Their explanation for their behaviour, with hindsight, may be very different from what they actually felt at the time.

WHAT MIGHT BE THE DIFFICULTIES RELATING TO INTERVIEWING CHILDREN AND YOUNG PEOPLE?

Easily distracted, limited attention span;

Researcher seen as an authority figure (link to ethical considerations);

Children are not always clear in their responses;

Children may say what they think the researcher wants to hear rather than what they really think/feel;

Interview may be seen as a test;

Children may be unwilling to contradict an adult or assert themselves;

Children may be inarticulate, hesitant and nervous.

GROUP INTERVIEW — PUPIL VOICE

A **group interview** is a form of qualitative research in which a group of children are asked about their perceptions, opinions and attitudes towards, for example, a lesson, their learning, a teaching strategy.

Questions are asked in an interactive group setting where children are free to talk with other group members.

The interview is conducted in an informal and natural way where children are free to give views.

GROUP INTERVIEWS

Keep in mind that people behave differently in groups

Understand why you are choosing a group of participants rather than individuals since responses may change — is it for a valid reason?

The researcher should have a marginal role in discussions

Often 6 - 8 participants...

GROUP INTERVIEW



<https://youtu.be/bPjJ6TPkLVM>

Watch the clip (3 minutes)

What are your views of this interview with pupils?



WRITING INTERVIEW QUESTIONS

WRITING QUESTIONS

Use open-ended questions

What did you think of ...?

How did you feel about ...?

What did you like best about ...?

**Be cautious of phrases such as
"how satisfied" or "to what extent".**



WRITING QUESTIONS

Avoid dichotomous questions

These questions can be answered with yes/no, true/false and may not allow pupils to extend their answers.



WRITING QUESTIONS

Use "think back" questions.

Take pupils back to an experience and not forward to the future.



WRITING QUESTIONS

Use different types of questions:

Don't be afraid to use questions that get participants **involved**.

For example;

Reflection

Examples

Choices

Ranking

Drawings, etc.



WRITING QUESTIONS

Avoid leading questions:

Don't you think...?

Wouldn't you say that...?

That must have been...?

Don't you agree that...?



WRITING QUESTIONS

Be clear by speaking your participants' language.

Use clear, concise, and uncomplicated language while trying to avoid acronyms, technical terms or jargon that may confuse your participants.

Consider the age of the pupils that you will be working with.



WRITING QUESTIONS

Focus the questions:

in a sequence that goes from general to specific.

WRITING QUESTIONS

Good example:

*What did you learn during the lesson?
How do you know?*

*Do you know what you need to do, in
order to further improve your
learning?*

*Which aspects of the teaching worked
well for you and why?*

*How do you think the lesson could be
improved? Why?*

Bad example:

*Which aspects of the teaching worked
well for you and why?*

*Do you know what you need to do, in
order to further improve your
learning?*

*How do you think the lesson could be
improved? Why?*

*What did you learn during the lesson?
How do you know?*

COLLECTING DATA

While in the interview:

- * Listen for inconsistent comments and probe for understanding;
- * Listen for vague or cryptic comments and probe for understanding;
- * Consider asking each participant a final preference question (so that all pupils can contribute);
- * Offer a summary of key points and seek confirmation.

If possible, audio record the interview. (You would need to include this in your consent and assent processes.)

IF YOU SELECT INTERVIEWING AS A RESEARCH METHOD, YOU SHOULD:

- * Write a long list of questions relating to your research focus;
- * Narrow down your list so that you have a suitable number for the age group of your pupils;
- * Order the questions so that they make sense;
- * **Pilot** the questions with another student.

PILOTING RESEARCH TOOLS — WHY BOTHER?

INTERVIEWS & QUESTIONNAIRES

Piloting is crucial, to:

- * ensure that the researcher has included questions that are necessary to measure the concept being studied (Dikko, 2016);
- * help identify any flaws or limitations within the interview design that allow necessary modifications to the study (Kvale, 2007);
- * ensure **validity** and **reliability**.

ENSURING...

Validity

The extent to which the results really measure what they are supposed to measure.

- Can participants answer the questions? We must ensure that we should ask the questions that they are capable of providing answers.
- In a questionnaire, are the response codes provided sufficient? Missing response codes can lead to answers being forced to fit into the codes provided, or to large numbers of 'other' answers.
- Do the response codes provide the sufficient discrimination? If most respondents give the same answer, then the pre-codes provided may need to be reviewed to see how the discrimination can be improved and, if that cannot be achieved, queries should be raised regarding the value of including the question.
- Do questions and responses allow us to answer the research question(s)? We need to ensure that the answers which respondents give to those questions are the responses to the questions that we think we are asking.

Reliability

The extent to which the results can be reproduced when the research is repeated under the same conditions.

- In an interview situation, do the questions sound right? It is surprising how often a question looks acceptable when written on piece of a paper but sounds false, stilted or simply silly when read out loud. Might the question need to be paraphrased so that it sounds more natural?
- Do the participants understand the questions? It is easy for technical vocabulary and jargon to creep into questions, so we need to ensure that it is eliminated.
- Have we included any ambiguous questions, double barrelled questions, loaded or leading questions?
- Does the interview retain the attention and interest of participants throughout? If attention is lost, then the quality of the data may be in doubt. Changes may be required in order to retain the respondent's interest.
- Does the interview flow properly?
- In a questionnaire, can the respondent understand the routing instructions? Particularly with paper questionnaires, we should check that the routing instructions can be understood.
- Does the questionnaire unfolds in a logical sequence, with a minimum of jumps between different ideas?



SAMPLING

RESEARCH QUESTION:

DO UNIVERSITY STUDENTS PERCEIVE THEMSELVES AS BEING CLEVERER THAN THEIR PEERS?

The target population is the 10,000 undergraduate students at my university.

I recruit 200 participants.

They are studying in the Faculty of Science and Engineering.

Most of them are British, male, 18–20 years old and from a high socio-economic background.

I give them a maths test.

I then ask them to rate how well they think performed.

The findings show that the average participant believes that they are cleverer than 66% of the population.

Can I conclude that most people believe themselves to be cleverer than their peers?

WHAT IS A SAMPLE?
WHY USE A SAMPLE?

SHOULD THE SAMPLE **ALWAYS** BE
REPRESENTATIVE?





RANDOM AND NON-RANDOM SAMPLING TECHNIQUES

Flick (2014)

CONVENIENCE SAMPLE

Limitations:

Does not produce a representative sample of the population and this can distort the results.
Findings cannot be generalised to the wider population.

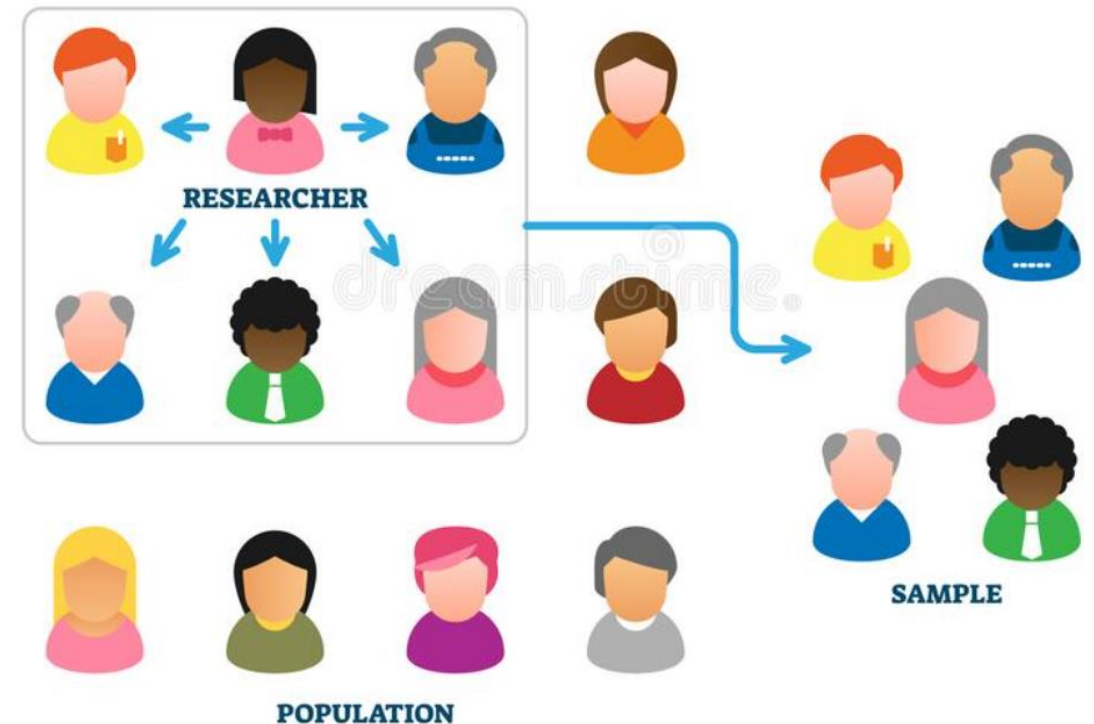
Example:

Deliberately choose a group of people who are most likely to provide information that will answer your research question (e.g. teachers from your placement school who you know use a specific strategy)

Benefit:

You have participants that are likely to give you the information you want to get

CONVENIENCE SAMPLING



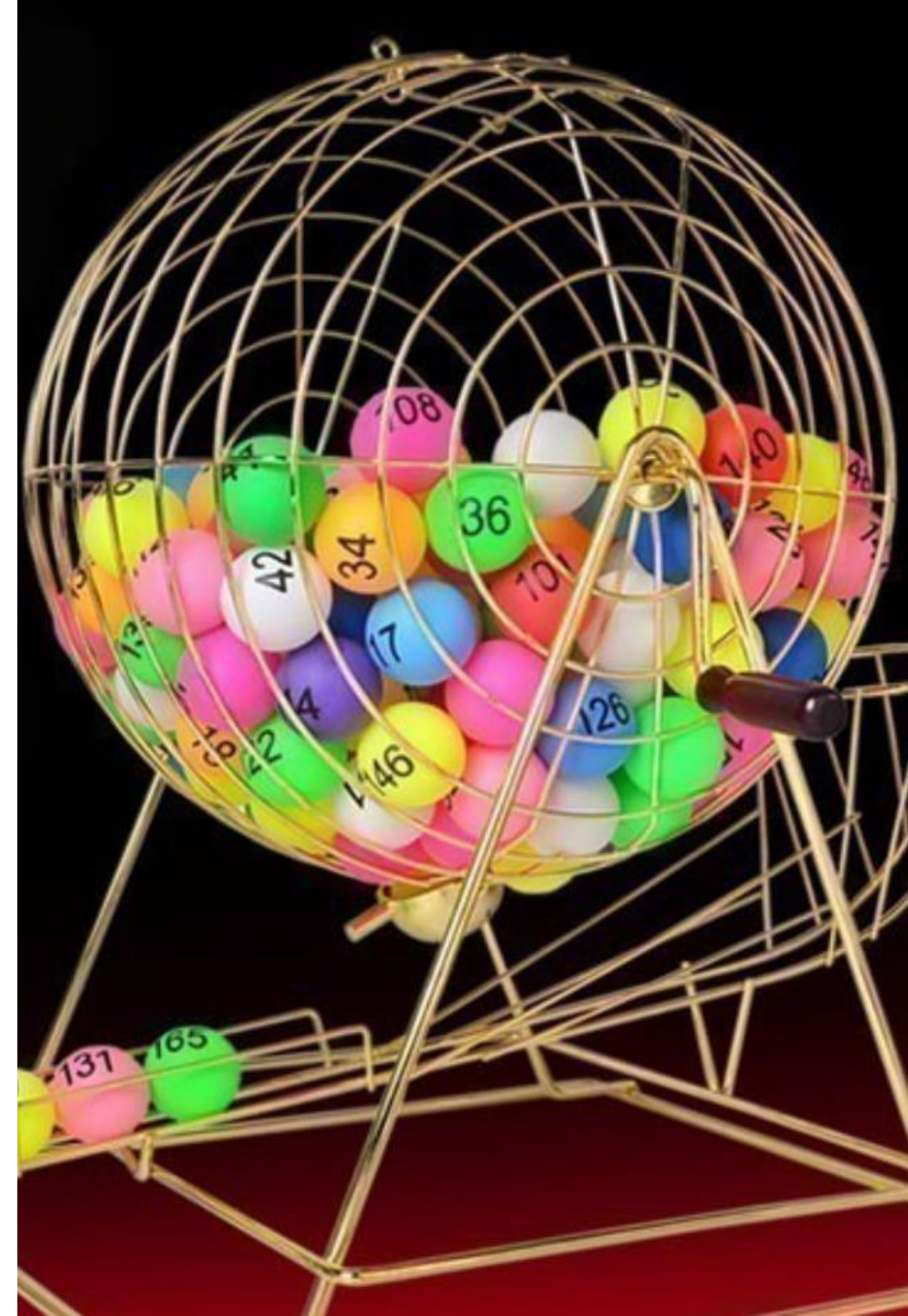
SIMPLE RANDOM SAMPLE

Example:

Assign a number to all 100 students. Then, use a random number generator to select 10 random numbers and use the corresponding students as members in the sample.

Benefit:

Simple random samples are usually representative of the population we are interested in since every member has an equal chance of being included in the sample.



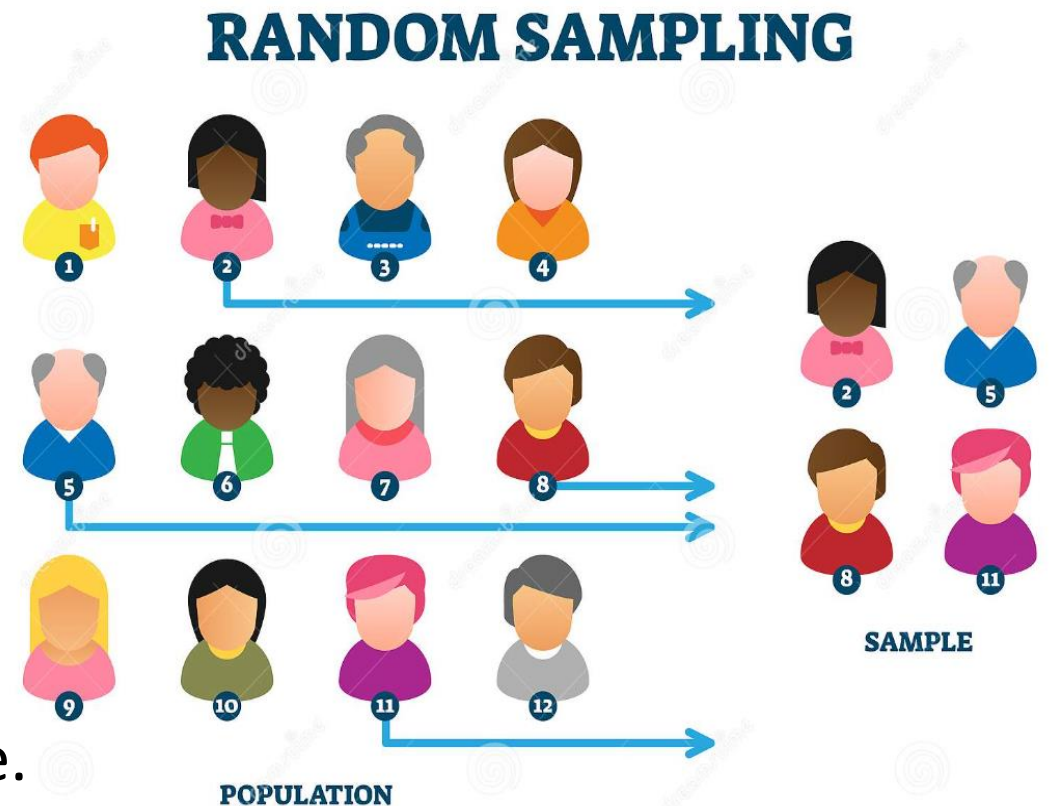
SYSTEMATIC RANDOM SAMPLE

Example:

Create a list in alphabetical order based on the surname of all your students, randomly choose a starting point, and pick every 3rd student to be in the sample.

Benefit:

Systematic random samples are usually representative of the population we are interested in since every member has an equal chance of being included in the sample.



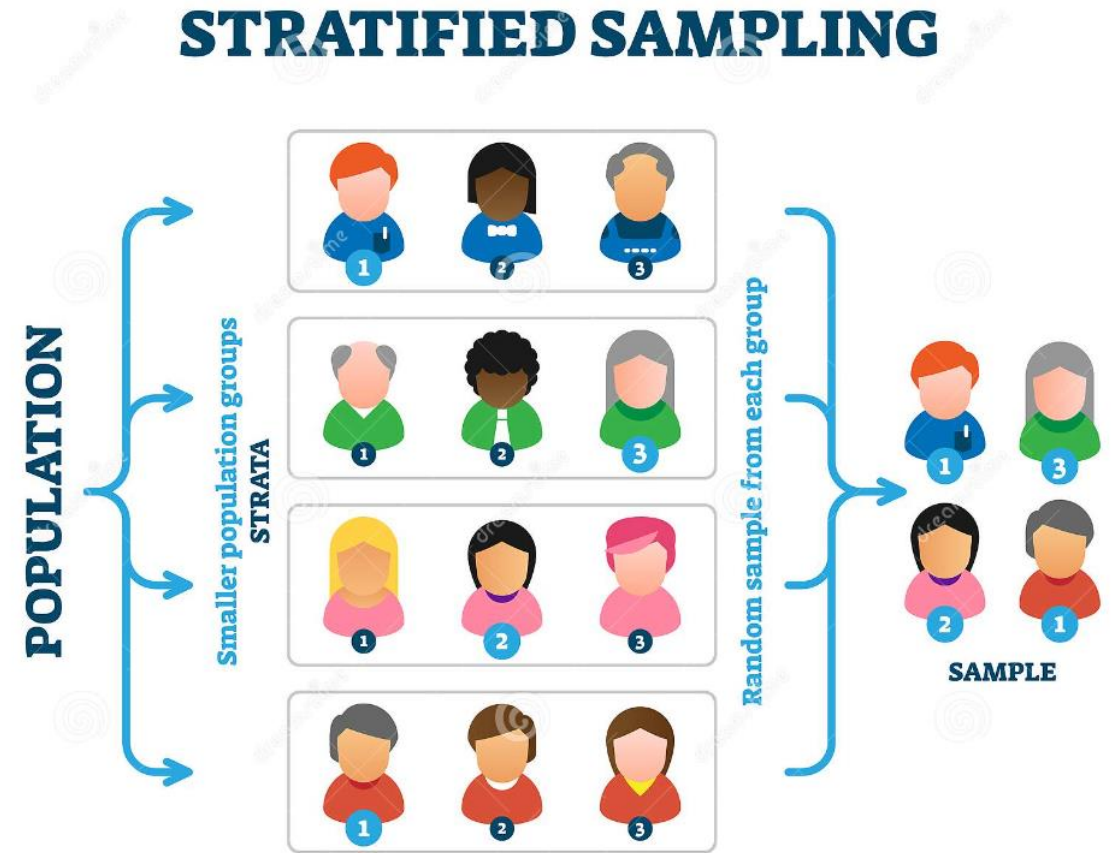
STRATIFIED RANDOM SAMPLE

Example:

Split up all students according to their year group – Year 5, Year 7, Year 9 and Year 11. Randomly select 25 students from each grade to be in the sample.

Benefit:

Stratified random samples ensure that an equal number of students from each year group are included in the sample.





**“I had a miraculous dream in which
our list of questions all had answers.”**

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