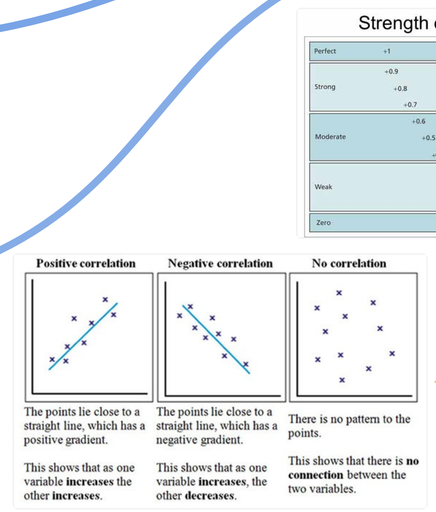
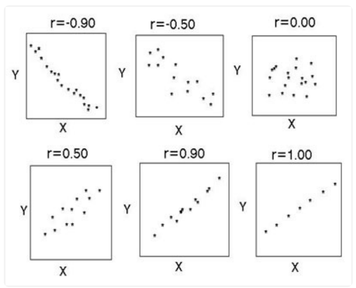
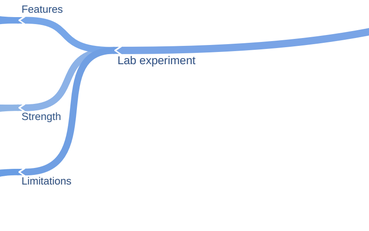
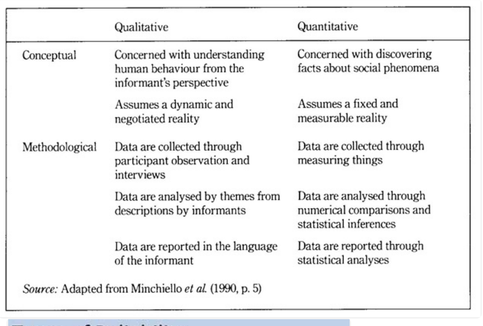
- research methods
  - Experimental
    - Variables
      - **Extraneous variables** – These are all variables, which are not the independent variable, but could affect the results (e.g. dependent variable) of the experiment
        - Demand Characteristics
          - these are all the clues in an experiment which convey to the participant the purpose of the research
        - Experimenter / Investigator Effects
          - The experimenter unconsciously conveys to participants how they should behave - this is called experimenter bias
        - Situational Variables
          - These are aspects of the environment that might affect the participant's behavior, e.g. noise, temperature, lighting conditions, etc. Situational variables should be controlled so they are the same for all participants
        - Participant / Person Variable
          - This refers to the ways in which each participant varies from the other, and how this could affect the results e.g. mood, intelligence, anxiety, nerves, concentration etc
      - **Independent variable (IV)**: Variable the experimenter manipulates (i.e. changes) – assumed to have a direct effect on the dependent variable
      - **Dependent variable (DV)**: Variable the experimenter measures, after making changes to the IV that are assumed to affect the DV
      - **Operational variables** (or operationalizing definitions) refer to how you will define and measure a specific variable as it is used in your study
    - Experimental Designs
      - Matched Pairs
        - Pros
          - Each condition uses different participants, but they are matched in terms of important characteristics, e.g. gender, age, intelligence etc
          - Reduces participant variables because the researcher has tried to pair up the participants so that each condition has people with similar abilities and characteristics
        - Cons
          - Avoids order effects, and so counterbalancing is not necessary
          - Very time-consuming trying to find closely matched pairs
          - Impossible to match people exactly, unless identical twins!
        - Controls
          - If one participant drops out you lose 2 PPs' data
          - Members of each pair should be randomly assigned to conditions. However, this does not solve all these problems
      - Independent Measures
        - Pros
          - Different participants are used in each condition of the independent variable
          - Avoids order effects (such as practice or fatigue) as people participate in one condition only.
        - Cons
          - More people are needed than with the repeated measures design (i.e. more time consuming)
          - Differences between participants in the groups may affect results
        - Controls
          - After the participants have been recruited, they should be randomly assigned to their groups
      - Repeated Measures
        - Pros
          - The same participants take part in each condition of the independent variable
          - Fewer people are needed as they take part in all conditions (i.e. saves time)
        - Cons
          - As the same participants are used in each condition, participant variables (i.e., individual differences) are reduced
          - There may be order effects. Order effects refer to the order of the conditions having an effect on the participants' behavior
        - Controls
          - To combat order effects the researcher counter balances the order of the conditions for the participants. Alternating the order in which participants perform in different conditions of an experiment
    - Natural experiment
      - Features
        - conducted in the everyday (i.e. real life) environment of the participants, but here the experimenter has no control over the IV as it occurs naturally in real life
      - Strength
        - Behavior in a natural experiment is more likely to reflect real life because of its natural setting, i.e. very high ecological validity
        - There is less likelihood of demand characteristics affecting the results, as participants may not know they are being studied
        - Can be used in situations in which it would be ethically unacceptable to manipulate the independent variable, e.g. researching stress
      - Limitations
        - They may be more expensive and time consuming than lab experiments
        - There is no control over extraneous variables that might bias the results. This makes it difficult for another researcher to replicate the study in exactly the same way
    - Lab experiment
      - Features
        - conducted in a well-controlled environment – not necessarily a laboratory – and therefore accurate measurements are possible
        - Participants are randomly allocated to each independent variable group
        - The researcher decides where the experiment will take place, at what time, with which participants, in what circumstances and using a standardized procedure
      - Strength
        - It is easier to replicate (i.e. copy) a laboratory experiment. This is because a standardized procedure is used.
        - They allow for precise control of extraneous and independent variables. This allows a cause and effect relationship to be established
      - Limitations
        - The artificiality of the setting may produce unnatural behavior that does not reflect real life, i.e. low ecological validity. This means it would not be possible to generalize the findings to a real life setting
        - Demand characteristics or experimenter effects may bias the results and become confounding variables
    - Field experiment
      - Features
        - Field experiments are done in the everyday (i.e. real life) environment of the participants
        - The experimenter still manipulates the independent variable, but in a real-life setting (so cannot really control extraneous variables)
      - Strength
        - Behavior in a field experiment is more likely to reflect real life because of its natural setting, i.e. higher ecological validity than a lab experiment
        - There is less likelihood of demand characteristics affecting the results, as participants may not know they are being studied. This occurs when the study is covert
      - Limitations
        - There is less control over extraneous variables that might bias the results. This makes it difficult for another researcher to replicate the study in exactly the same way
  - None experimental
    - Ethical guidelines
      - Colleagues
        - Tell somebody your colleagues are breaking the rules
      - Giving advice
        - Give psychological help after the experiment
      - Observational research
        - In public areas
      - Debriefing
        - tell the real aim, the result
        - After the experiment
      - Informed consent
        - Notify the participant before the experiment
      - Deception
        - lying in order to get more natural behaviors
        - allow the participants to stop at any time
      - Withdrawal
        - names are not mentioned (anonymous)
      - Confidentiality
        - No physical nor psychological harm
      - Protection
    - Conducting research
      - Hypothesis
        - Non-directional (two-tailed) {doesn't say the direction} {use words like affect}
        - Null hypothesis
        - Directional (one-tailed) {make… better/worse}
        - Alternative Hypothesis/Experimental hypothesis
      - Sampling
        - Random sampling
          - the target population identified and then participants are randomly picked e.g. names out of a hat, number all of the target population and then picking the using a random number generator. All participants have an equal chance of being selected
        - Opportunity
          - researchers approach the people they have available to them and asks participate e.g. ask people on the street
        - Volunteer
          - the researcher advertises and the participants approach the researchers e.g. poster on a notice board
    - Questionnaire
      - Likert scales
        - Importance
        - Agreement
        - Frequency
        - Likelihood
      - Case study
        - Strength
          - Permitting investigation of otherwise impractical (or unethical) situations
          - Provides detailed (rich qualitative) information
          - Provides insight for further research
        - Weakness
          - Difficult to replicate
          - Can't generalize the results to the wider population
          - Researchers' own subjective feeling may influence the case study (researcher bias)
          - Time consuming
      - Interviews
        - Structured interview
          - Strength
            - Structured interviews are easy to replicate as a fixed set of closed questions are used, which are easy to quantify – this means it is easy to test for reliability
            - Structured interviews are fairly quick to conduct which means that many interviews can take place within a short amount of time. This means a large sample can be obtained resulting in the findings being representative and having the ability to be generalized to a large population
          - Limitations
            - Structure interviews are not flexible. This means new questions cannot be asked impromptu (i.e. during the interview) as an interview schedule must be followed
        - Unstructured interview
          - Strength
            - Unstructured interviews are more flexible as questions can be adapted and changed depending on the respondents' answers. The interview can deviate from the interview schedule
            - Unstructured interviews generate qualitative data through the use of open questions. This allows the respondent to talk in some depth, choosing their own words. This helps the researcher develop a real sense of a person's understanding of a situation
            - increased validity because it gives the interviewer the opportunity to probe for a deeper understanding, ask for clarification & allow the interviewee to steer the direction of the interview etc
          - Limitations
            - It can be time consuming to conduct an unstructured interview and analyze the qualitative data (using methods such as thematic analysis)
            - Employing and training interviewers is expensive, and not as cheap as collecting data via questionnaires. For example, certain skills may be needed by the interviewer. These include the ability to establish rapport & knowing when to probe
        - Group interview
          - Strength
            - Group interviews generate qualitative data through the use of open questions. This allows the respondents to talk in some depth, choosing their own words. This helps the researcher develop a real sense of a person's understanding of a situation
            - They also have increased validity because some participants may feel more comfortable being with others as they are used to talking in groups in real life (i.e. it's more natural)
          - Limitations
            - The researcher must ensure that they keep all the interviewees details confidential and respect their privacy. This is difficult when using a group interview. For example, the researcher cannot guarantee that the other people in the group will keep information private
            - Group interviews are less reliable as they use open questions and may deviate from the interview schedule making them difficult to repeat
            - Group interviews may sometimes lack validity as participants may lie to impress the other group members. They may conform to peer pressure and give false answers
      - Closed question
        - Strength
          - They can economical. This means they can provide large amounts of research data for relatively low costs
          - The data can be quickly obtained as closed questions are easy to answer (usually just ticking a box). This means a large sample size can be obtained which should be representative of the population, which a researcher can then generalize from
          - The questions are standardised. All respondents are asked exactly the same questions in the same order. This means a questionnaire can be replicated easily to check for reliability. Therefore, a second researcher can use the questionnaire to check that the results are consistent
        - Limitation
          - They lack detail. Because the responses are fixed there is less scope for respondents to supply answers which reflect their true feelings on a topic
      - Open question
        - Strength
          - Rich qualitative data is obtained as open questions allow the respondent to elaborate on their answer. This means the research can find out why a person holds a certain attitude
        - Limitations
          - Time consuming to collect the data. It takes longer for the respondent to complete open questions. This is a problem as a smaller sample size may be obtained
          - Time consuming to analyze the data. It takes longer for the researcher to analyze qualitative data as they have to read the answers and try to put them into categories by coding, which is often subjective and difficult
          - Not suitable for less educated respondents as open questions require superior writing skills and a better ability to express one's feelings verbally
    - Observations
      - Controlled Observations
        - Strength
          - Controlled observations can be easily replicated by other researchers by using the same observation schedule. This means it is easy to test for reliability
          - The data obtained from structured observations is easier and quicker to analyze as it is quantitative (i.e. numerical) - making this a less time consuming method compared to naturalistic observations
          - Controlled observations are fairly quick to conduct which means that many observations can take place within a short amount of time. This means a large sample can be obtained resulting in the findings being representative and having the ability to be generalized to a large population
        - Limitation
          - Controlled observations can lack validity due to the Hawthorne effect/demand characteristics. When participants know they are being watched they may act differently
      - Natural Observations
        - Strength
          - By being able to observe the flow of behavior in its own setting studies have greater ecological validity
          - Like case studies naturalistic observation is often used to generate new ideas. Because it gives the researcher the opportunity to study the total situation it often suggests avenues of enquiry not thought of before
        - Limitations
          - These observations are often conducted on a micro (small) scale and may lack a representative sample (biased in relation to age, gender, social class or ethnicity). This may result in the findings lacking the ability to be generalized to wider society
          - Natural observations are less reliable as other variables cannot be controlled. This makes it difficult for another researcher to repeat the study in exactly the same way
          - A further disadvantage is that the researcher needs to be trained to be able to recognise aspects of a situation that are psychologically significant and worth further attention
          - With observations we do not have manipulations of variables (or control over extraneous variables) which means cause and effect relationships cannot be established
      - Participant Observation
        - Limitations
          - It can be difficult to get time / privacy for recording
          - If the researcher becomes too involved they may lose objectivity and become bias
  - Data
    - Correlation
      - correlation coefficient



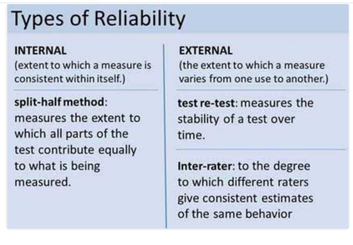






	Qualitative	Quantitative
Conceptual	Concerned with understanding human behaviour from the informant's perspective	Concerned with discovering facts about social phenomena
	Assumes a dynamic and negotiated reality	Assumes a fixed and measurable reality
Methodological	Data are collected through participant observation and interviews	Data are collected through measuring things
	Data are analysed by themes from descriptions by informants	Data are analysed through numerical comparisons and statistical inferences
	Data are reported in the language of the informant	Data are reported through statistical analyses

Source: Adapted from Minchiello *et al.* (1990, p. 5)



- Qualitative & quantitative
- Reliability
  - Assessing reliablility
  - Split-half method
    - The split-half method assesses the internal consistency of a test, such as psychometric tests and questionnaires. There, it measures the extent to which all parts of the test contribute equally to what is being measured.
    - This is done by comparing the results of one half of a test with the results from the other half. A test can be split in half in several ways, e.g. first half and second half, or by odd and even numbers. If the two halves of the test provide similar results this would suggest that the test has internal reliability.
  - test-retest
    - The test-retest method assesses the external consistency of a test. Examples of appropriate tests include questionnaires and psychometric tests. It measures the stability of a test over time.
  - Internal reliability = the extent to which the results of the study a consistent
  - External reliability = extent to which the results of the study can be repeated
- Validity
  - Internal validity
    - The extent to which the study measures what it is supposed to
  - Ecological validity
    - Extent to which the results of the study can be applied to real life
  - Population validity
    - extent to which the results of the study can be applied to other people
  - Predictive validity
    - extent to which the results of a test can predict performance / behavior
  - convergent validity
    - extent of agreement between tests measuring the same variable