

CHECKLIST OF THINGS YOU SHOULD KNOW FROM YEAR 12

- The difference between **quantitative** and **qualitative** data
- The difference between a **directional hypothesis** and a **non-directional hypothesis**
- The **operationalisation of variables**
- The difference between an **independent variable** and a **dependent variable**
- The difference between a **control group** and an **experimental group**
- The difference between a **laboratory experiment**, a **field experiment**, and a **natural experiment** in terms of how the independent variable is manipulated
- **Two advantages** and **two disadvantages** of a **laboratory experiment**
- **Two advantages** and **two disadvantages** of a **field experiment**
- **Two advantages** and **two disadvantages** of a **natural experiment**
- What is involved in **random sampling**, **opportunity sampling**, and **volunteer sampling**
- The purpose of a **pilot study**
- The concept of **extraneous variable**
- **Demand characteristics** and how they are controlled for using **single blind control**
- **Investigator effects** and how they are controlled for using **double blind control**
- How participants are allocated to conditions when an **independent groups design** is used in an experiment, and an **advantage** and **disadvantage** of this kind of experimental design
- How participants are allocated to conditions when a **repeated measures design** is used in an experiment, and an **advantage** and **disadvantage** of this kind of experimental design

- How participants are allocated to conditions when a **matched pairs design** is used in an experiment, and an **advantage** and **disadvantage** of this kind of experimental design
- What is involved in a study using **correlational analysis**, and a **strength** and **weakness** of this kind of study
- The difference between a **positive** and a **negative correlation**
- How the strength of a correlation can be described using the **correlation coefficient**
- The difference between **non-participant observation** and **participant observation**
- **Two advantages** and **two disadvantages** of observation studies
- The use of **behavioural categories** in observation studies
- The difference between **structured questionnaires** and **unstructured questionnaires**
- **Two advantages** and **two disadvantages** of questionnaire studies
- The difference between **structured interviews** and **unstructured interviews**
- **Two advantages** and **two disadvantages** of interview studies
- The nature of a **case study**, and **two advantages** and **two disadvantages** of case studies
- The difference between **reliability** and **validity**
- **Ethical issues** in psychological research and the ways in which psychologists deal with them
- How data can be presented and interpreted using **graphs**, **scattergrams** and **tables**
- The difference between **mean**, **median**, and **mode** as **measures of central tendency**

- The difference between the **range** and **standard deviation** as measures of **dispersion**
- The processes involved in **content analysis**

CHECKLIST OF THINGS YOU SHOULD KNOW FROM YEAR 12 (THE ANSWERS)

- The difference between **quantitative** and **qualitative** data

Quantitative data is data in the form of **numbers** (e.g. a participant's **score** on a memory test). **Qualitative data** is data in the form of **descriptions** (e.g. a participant **verbal answer** to a question).

- The difference between a **directional hypothesis** and a **non-directional hypothesis**

Both kinds of hypothesis predict that something will happen in a study. A **non-directional hypothesis** predicts that X will affect Y, but does not say how X will affect Y. A **directional hypothesis** predicts exactly how X will affect Y. For example, "Alcohol will affect reaction time" is a non-directional hypothesis, because it does not predict exactly how reaction time will be affected. "Alcohol will affect reaction time by increasing it" is a directional hypothesis because it specifies exactly how reaction time will be affected.

- The **operationalisation of variables**

Operationalisation means defining a variable in a way that enables it to be measured. For example, in order to test the hypothesis that alcohol will affect reaction time, we need to define what we mean by "alcohol" and "reaction time". Alcohol could be defined as "two units of alcohol", and reaction time could be defined as "the speed at which a person responds to a target appearing in the visual field". This would give the following operationalised hypothesis: "Two units of alcohol will affect the speed at which a person responds to a target appearing in the visual field".

- The difference between an **independent variable** and a **dependent variable**

The **independent variable** is the variable that the investigator is interested in seeing the effects of in an experiment. The **dependent variable** is the variable that is measured. For example, with the hypothesis "alcohol will affect reaction time", the independent variable is "alcohol" and the dependent variable is "reaction time".

- The difference between a **control group** and an **experimental group**

The control group do not receive the independent variable, whereas the experimental group do. For example, the experimental group would receive alcohol, and the control group would receive no alcohol.

- The difference between a **laboratory experiment**, a **field experiment**, and a **natural experiment** in terms of how the independent variable is manipulated

A laboratory experiment takes place in a laboratory, and the researcher deliberately manipulates the independent variable. The researcher also manipulates the independent variable in a field experiment, but a field experiment takes place in the "real world". A natural experiment also takes place in the "real world", but the researcher does not deliberately manipulate the independent variable. Instead, s/he takes advantage of a naturally occurring manipulation of the independent variable, such as when a society goes from having no television to having television, and the researcher measures how some aspect of behaviour changes.

- **Two advantages and two disadvantages of a laboratory experiment**

One **advantage** of a laboratory experiment is that the researcher has a **high degree of control**. Another **advantage** is that because laboratory experiments use standardised procedures, they can be **easily replicated**. One **disadvantage** of a laboratory experiment is that they are **artificial** and may lack ecological validity. Another **disadvantage** is that because participants know they are in an experiment, **demand characteristics** may occur.

- **Two advantages and two disadvantages of a field experiment**

What are **disadvantages** for the laboratory experiment are advantages for the field experiment: Because they occur in the "real world", field experiments are **not artificial**. Because participants do not know they are in an experiment, there are **no demand characteristics**. What are **advantages** for the laboratory experiment are disadvantages for the field experiment: Because they take place in the "real world", the researcher has a **low degree of control**. Because it is difficult to recreate exactly the conditions occurring in the "real world" when a field experiment is conducted, they are **more difficult to replicate**.

- **Two advantages and two disadvantages of a natural experiment**

The advantages and disadvantages here are the same as for the field experiment.

- What is involved in **random sampling, opportunity sampling, and volunteer sampling**

In **random sampling**, all participants have the same chance of being selected. This can be achieved by 'pulling names from a hat'. In **opportunity sampling**, the researcher takes the opportunity to use whoever happens to be around at the time the research is being done (e.g. a classroom full of students). In **volunteer sampling**, the researcher advertises for participants in some way (e.g. a newspaper) and uses those participants who respond to the advertisement.

- The purpose of a **pilot study**

A **pilot study** is a small scale study carried out to ensure that there are no problems in the procedures that will be used when the actual study is carried out.

- The concept of **extraneous variables**

Extraneous variables are any variables that might affect the study in an unintended way. For example, in a study carried out in a classroom, some participants may be affected by the noise from people talking outside the room. Some extraneous variables are easily to control for, but others are not because of their random nature. Extraneous variables are also called **confounding variables**.

- **Demand characteristics and how they are controlled for using single blind control**

Demand characteristics are when participants attempt to guess the purpose of the investigation, and then change their behaviour in a way they think will be helpful or (in the case of some participants) unhelpful. **Single blind control** involves keeping participants in ignorance as to the real purpose of the investigation so that they cannot bias their behaviour (e.g. Milgram's obedience study).

- **Investigator effects and how they are controlled for using double blind control**

Investigator effects are when the investigator either intentionally or unintentionally affects the way participants would ordinarily behave. These effects can be controlled using **standardised procedures and instructions**, in which the investigator treats all participants in exactly the same way. They

can also be controlled using **double blind control**. In this, the person carrying out the investigation is unaware of the hypothesis being tested. If s/he doesn't know what the research is investigating, his/her behaviour cannot be biased.

- How participants are allocated to conditions when an **independent groups design** is used in an experiment, and an **advantage** and **disadvantage** of this kind of experimental design

In an **independent groups design**, half of the participants are randomly allocated to one condition, and half to the other condition. One **advantage** of this design is that the researcher can use exactly the same stimulus material in both conditions. One **disadvantage** of this design is that even if participants are randomly allocated to the two conditions, there is no guarantee that the two conditions are equal in terms of the participants' characteristics.

- How participants are allocated to conditions when a **repeated measures design** is used in an experiment, and an **advantage** and **disadvantage** of this kind of experimental design

In a **repeated measures design**, all of the participants appear in both conditions. One **advantage** of this design is that the two groups are exactly the same in terms of the participants' characteristics ('each participant acts as his or her own control'). One **disadvantage** of this design is that the same stimulus material cannot be used in both conditions. Note also that if all of the participants do condition 1 followed by condition 2, an **order effect** will occur. However, this can be controlled for using **counterbalancing**.

- How participants are allocated to conditions when a **matched pairs design** is used in an experiment, and an **advantage** and **disadvantage** of this kind of experimental design

In a **matched pairs design**, different participants appear in the two conditions. However, pairs of participants are matched in ways that the investigators think it is important to control for (e.g. intelligence). One **advantage** of this design is that the same stimulus material can be used in the two conditions. One **disadvantage** of this design is that it is much more time consuming than either of the others because of the difficulties in finding lots of pairs of participants who are matched in the way the investigator wants.

- What is involved in a study using **correlational analysis**, and a **strength** and **weakness** of this kind of study

Correlational analysis involves taking two measurements from a number of participants and then seeing if there is a **relationship** between them. For example, participants' intelligence could be correlated with their income. One **advantage** of correlational analysis is that if there is a correlation between two variables, we can make **predictions** about one variable based on our knowledge about the other. One **disadvantage** of correlational analysis is that **cause and effect cannot be inferred**. So, just because two variables are correlated, it does not necessarily mean that one is causing the other.

- The difference between a **positive** and a **negative correlation**

In a **positive correlation**, an increase in one variable is associated with an increase in the other variable. In a **negative correlation**, an increase in one variable is associated with a decrease in the other variable.

- How the strength of a correlation can be described using the **correlation coefficient**

A **correlation coefficient** is a number which describes the strength of a correlation. It varies between -1.0 and +1.0. A minus sign indicates a negative correlation, whilst a plus sign indicates a positive correlation. A Value of 1.0 indicates a **perfect correlation**. A value of 0 indicates **no correlation**. The closer a value is to 0, the weaker a correlation is. The closer a value is to 1.0, the stronger a correlation is.

- The difference between **non-participant observation** and **participant observation**

In **non-participant observation**, the observer is detached from the situation in which the behaviour is occurring (e.g. observing via a hidden video camera). In **participant observation**, the observer becomes a part of what is being observed (e.g. becoming a member of a group of football hooligans). This kind of observation can be **disclosed** (certain members of the group are aware that observation is occurring) or **undisclosed** (no one is aware that observation is occurring).

- **Two advantages and two disadvantages of observation studies**

One **advantage** of observation studies is that they have **high ecological validity**. Another **advantage** is that because participants are usually unaware they are being observed, **demand characteristics** are unlikely. One **disadvantage** of observation studies is **observer bias** (if observers know the purpose of the study their observations may be biased). Another **disadvantage** is that observing people without their consent may raise **ethical issues**.

- The use of **behavioural categories in observation studies**

In any observation study, observers need to have a clear idea of what behaviours they are looking for. To do this, **behavioural categories** are established before the observation takes place. For example, 'aggression' may be categorised as 'punching', 'swearing', 'pushing' etc.

- The difference between **structured questionnaires and unstructured questionnaires**

Structured questionnaires involve asking questions which have answers that are 'fixed' by the researcher. For example, participants may be given only the options 'yes' or 'no' to various questions. **Unstructured questionnaires** allow participants to answer questions in their own words - answers may be as long or as short as the participants want.

- **Two advantages and two disadvantages of questionnaire studies**

One **advantage** of questionnaires is that they because they are cheap to produce a **large amount of data** can be generated in a **short period of time**. Another **advantage** is that since questionnaires use standardised questions, this kind of study is **easy to replicate**. One **disadvantage** of questionnaires is that designing them is a **highly skilled job** (just think about all those ambiguous questionnaire studies GCSE students produce for their coursework). Another **disadvantage** is that questionnaires sometimes produce a **low response rate**, and those who do complete questionnaires may produce a **biased sample**.

- The difference between **structured interviews and unstructured interviews**

Structured interviews involve asking questions which have answers that are 'fixed' by the researcher. For example, participants may be given only the options 'yes' or 'no' to various questions. **Unstructured interviews** allow participants to answer questions in their own words - answers may be as long or as short as the participants want.

- **Two advantages and two disadvantages of interview studies**

One **advantage** of interviews is that they are better to use than questionnaires when the researcher is studying a **complex or sensitive issue**. Another **advantage** of interviews is that they can be **analysed using either**

quantitatively or qualitatively. One **disadvantage** of interviews is that participants' responses may be influenced by who is interviewing them (**interviewer effects**). Another **disadvantage** is that **ethical issues** may be raised when sensitive issues are being studied.

- The nature of a **case study**, and **two advantages** and **two disadvantages** of case studies

A **case study** is an in-depth, detailed investigation of a single 'case'. In Psychology, the 'case' is usually a single human being. One **advantage** of case studies is that they provide **rich detail** about a particular issue. Another **advantage** is that a case study is sometimes **the only method that can be used** (as in the case of studying functions of particular brain structures). One **disadvantage** of case studies is that it is **difficult to generalise** from a single case to the wider population. Another **disadvantage** is that a researcher studying a single case may become **biased** with their observations.

- The difference between **reliability** and **validity**

Reliability means consistency. If, when a study is done, the same results are consistently obtained, then the finding is **reliable**. There are several different kinds of **validity**. However, a study is **valid** if it measures what it says it measures (e.g. Milgram's study claimed to measure how obedient people were).

- **Ethical issues** in psychological research and the ways in which psychologists deal with them

Ethical issues include things like **deception**, **informed consent**, and **protection from harm**. Psychologists use the **BPS Code of Conduct** to deal with these issues.

- How data can be presented and interpreted using **graphs**, **scattergrams** and **tables**

See your notes for this one!!

- The difference between **mean**, **median**, and **mode** as measures of **central tendency**

The **mean** is the measure produced when all of the scores in a data set are added up and divided by the number of score. The **median** is the measure produced when all of the scores are put in order from lowest to highest and the score in the middle is chosen. The **mode** is the most frequently occurring score in a data set.

- The difference between the **range** and **standard deviation** as measures of **dispersion**

The **range** is the difference between the highest and lowest scores in a data set. The smaller the range, the less variation there is. The **standard deviation** is a measure of how much variation there is around the mean. If the standard deviation is small, scores in the data set are similar to the mean. If the standard deviation is large, scores in the data set are dissimilar to the mean.

- The processes involved in **content analysis**

In **content analysis**, a researcher studies something (e.g. a television programme or newspaper) and analyses its content in terms of something s/he is interested in. For example, to assess a newspaper's political leaning, a researcher may count the number of times favourable/unfavourable statements are made about each political party.