Qualitative research – assignment 1

There are many different types of data. These are

Continuous data is data that can take any value for example time or distance. Unlike continuous data **discrete data** is numeric data that can take only a limited number of values such as number of people or heart rate.

Nominal data (sometimes referred to as discreet data) is data that can be grouped in to categories. It is some times called frequency data because it indicates the number of times a piece of data has come about. A good example of nominal data is where in the country people live. For example Manchester, Nottingham. Whereas **Interval data** is measured on a scale that has equal number of units or intervals and is accepted as a physical unit of measurement. But does not have an absolute zero value, for example the Fahrenheit temperature on a thermometer. However **Ratio data** does have an absolute zero determined by nature. For example height, weight. (Interval and ratio data are a further type of numerical data. They are two different classifications of data but due to there many similarities can sometimes be classed as one.) ratio data is measured on a ratio scale similarly to interval data it has equal numbers of units or intervals, It uses zero to represent a missing value and it is impossible to have a negative value. An example of this would be distance covered on the bruce protocol test or VO2 max.

 Ordinal data is often referred to as ranking data, gives a numerical value to the order of different variables but doesn't indicate the actual scores for example ordered scales (never, rarely, sometimes, often, all the time)

Variable data is a characteristic of a person, place or thing that can assume more than one value. **Constant data** however is data that can not change and can only assume one value.

I am now going to give some examples of data and say what type they are and describe the characteristics that it has along with some similarities and differences of other types of data.

Example 1

Participant	Time taken	Participant	Time taken
John	65seconds	Josh	61seconds
Mark	60seconds	Andy	58 seconds

This type of data is continuous data because it can take any value with in a range. Unlike discrete data it is not limited in the value it can take.

Example 2

Participant	Level	stage
John	6	5
Mark	7	8

This type of data is discrete data because it can only take a limited number of values. Unlike continuous data however that can take a wide range of values.

Example3

Ethnic back ground of Olympic athletes
English
English
Arabian

This example is nominal data because it is data that can be grouped in to mutually exclusive categories.

Primary data is data that you measured your self. Because of this you know exactly were the results come from and that they are reliable. **Secondary data** is data that some one else has collected. This is beneficial if you need to find

something out like the number of red cards given in one season of football. Because it would be time consuming and you wouldn't be able to watch every match that was played. However this type of data could be completely unreliable and made up. If it was found on the internet the chances of this increase. Which would mean that the quality of you research wouldn't be good and the results wouldn't necessarily be correct.

Validity refers to the meaningfulness of data. For example the multistage fitness test. This test is designed to measure fitness. If it is a valid test the results would be gathered correctly and the fitness of athletes would be correctly assessed. The multi stage fitness test is valid and meaningful for athletes playing a sport such as basketball because it tests there speed and agility. However it is not very valid or meaningful for swimmers because they don't have to be able to run.

Reliability means how trust worthy the information that has been collected is. To get a reliable result it is best to do the test a few times. If the same result is reached each time then the result is reliable and trustworthy if a different result is reached then the result is probably unreliable. The two main causes of unreliability are errors and intra- subject variation. Errors normally accrue when poor or inaccurate equipment is used. This can be overcome easily by the right training and correct maintenance. Intra-subject variation is harder to control. For example if you wanted to measure the physiological variables using accurate

data things such as the events happening that day, how much the athlete has eaten and how much they have slept can change the outcome of the research. To overcome this problem the best thing to do is set out a timetable and carry out the experiment at the same time every day. By doing this the test is made fairer and the quality of the research will improve.

What is reliability?

Joppe (2000) defines reliability as:

"The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable."

What is validity?

Joppe (2000) provides the following explanation of what validity is in quantitative research:

"Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine validity by asking a series of questions, and will often look for the answers in the research of others."

Validity and reliability affects the quality of research because if the research is

not valid or reliable it is not useful. Therefore the quality of the research is poor. If the research is reliable and valid it is useful therefore the quality of the research is good.

To ensure the quality of research you need to make sure it is precise and relates to the topic being researched, accurate, valid and reliable. If it isn't any of these the quality of it might not be very high. You also may wish to take in to consideration whether the research is primary or secondary as that may also alter the reliability and quality or the research.

What is accuracy?

"Accuracy determines conformity with the truth or with a gold standard. Are you measuring the actual value of something as you intended?" *(btec national in sport and exercise science written by Jennifer Stafford- brown, Simon rea and john chance page 226).* Accuracy relates to the quality of a result.

What is precision?

"Precision is related to the care and refinement of the measuring processes. It is assessed via the repeatability of the readings." *(btec national in sport and exercise science written by Jennifer Stafford- brown, Simon rea and john chance page 226)*

Accuracy and precession.

Precision relates to the repeatability of readings. If a reading is repeated several times and the same amount is repeated a statistical measurement of precision can be made. For example if a person weighs them self 3 time and their results were as follows; 10.0st, 10.2st and 10.5st there result would not be precise, however if they weighed them selves again a further 3 times and came out with 3 results being 10.2st, 10.2st and 10.2st then the weight would be precise. Accuracy relates to recording the accurate value of something. It relates to the quality of a result. It is distinguished from precision which relates to the quality of the way the result is reached. An example of accuracy is if you were measuring the heart rate of an athlete on a heart rate monitor and the heart rate was recorded as being 85, but the heart rate was already recorded as being 91 the monitor would be inaccurate. Results can be precise and inaccurate and accurate and imprecise. The targets below show this.
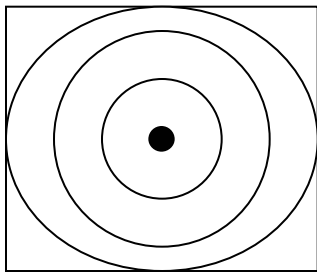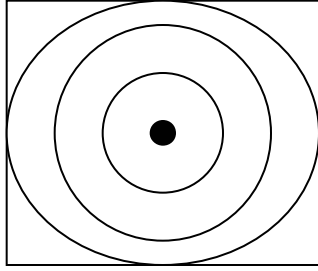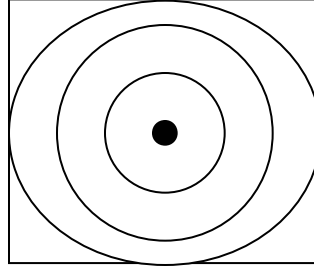
Precise but not accurate   **Accurate but not precise.**
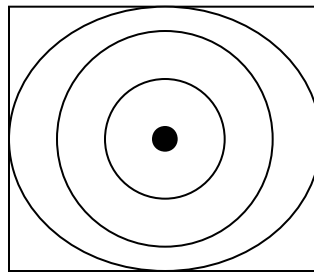
Both precise and accurate   **Nether accurate or precise**.

As you can see from the diagrams above it is possible for data to be accurate and precise, precise but not accurate, accurate but not precise and nether accurate or precise.

If data is precise and accurate the quality of my data is better than if it was only precise and not accurate, or accurate but not precise. Being both precise and accurate means that data is a lot more valid and reliable.

I can evaluate how precise and accurate my data in the IVA project is by doing the tests under the same conditions, after eating the same things, in the same gym and with the same equipment. If I do these then I know that my data will be accurate and precise as long as the equipment I use is working properly.