

Quantitative vs. Qualitative

Observations can be either quantitative or qualitative. Quantitative observations are numerical and measurable by using tools. Other quantitative observations can include counting an amount, or using a scale system (like the pain scale used at a doctor's office). Because those observations are number-based, they can be compared easily (the difference between numbers, averages, etc).

Qualitative observations are any observations that are not numerical, and typically are descriptive and use adjectives. For example, describing the color of an object is a qualitative observation. Describing its mass is a quantitative observation. However, qualitative observations can be turned into quantitative observations by using a scale system. These are often 1-5 or 1-10 scales, where 1 represents the lowest qualitative description and 10 represents the highest (or visa versa).



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Quantitative

Quantitative-Queen Scientist

Quantitative observations are one type of observation typically associated with numbers and amounts.

Measureable and uses numbers

Scientist Measuring size and recording with Numbers

Quantitative observations can be measured and use numbers for descriptions.

Can be gathered by counting, using measurement tools, or creating a scale

Measuring with Ruler

In order to make quantitative measurements, scientists must use certain tools, count amounts, or create a scale system. They can use rulers, thermometers, or weighing scales to measure distance, temperature, and mass. They can also use a 1-5 or 1-10 scale system to quantify an observation (like the pain scale at a doctor's office).

Can be compared more easily

Difference between Numbers more clear than Difference between Words

Quantitative observations are more easily compared because scientists can take the difference between numbers or observe changes in numbers easily. For example, if something grew from 6 to 7 centimeters, it's easy to compare the growth (1cm).

Qualitative

Qualitative-Koala Scientist

Qualitative observations are generally all observations that are not numerical.

Descriptive and uses adjectives

Descriptive words Holy Cow! and OMG

Qualitative observations typically use descriptive words and adjectives, like describing the color of something as orange.

Can be made quantitative by creating a scale, using a 1 to 5 system

On 1-5 Bad Smell Scale

Qualitative observations are frequently turned into quantitative observations by a scale system. We can convert words like bad, okay, and good into a 1-3 scale system where bad is 1, okay is 2, and good is 3.