



## Q&A - Questions And Answers <sup>[1]</sup>

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Questions and answers about research. The questions have been asked by readers and the answers are by various authors on the website.

### **Does the Results of Every Scientific Experiment Need to Be Quantitative?**

No, scientific experiments are not always quantitative <sup>[3]</sup>. But it depends on how you use the word 'experiment'.

Experiments <sup>[4]</sup> were invented to check if a prediction was right or not, but the measure does not need to be quantitative. True experiments <sup>[5]</sup> were invented to check predictions using quantitative measures (and results) which they can analyze numerically. The advantage is that it is easier to determine causes in the experiment.

In the old days, the meaning of the word experiment was far simpler. Doing an experiment just indicated that the researcher was doing something actively to evoke a phenomenon and then study it.

The Ben Franklin Kite Experiment <sup>[6]</sup> did not have quantitative results (at first). Ben Franklin simply made a Kite Dragon and put it into the air during lightning to see whether it would generate electricity when hit.

### **Why Choose Case Studies As Your Method of Research?**

There are mainly three reasons for choosing the case study design <sup>[7]</sup>.

1. Stumble upon: The scientist stumble upon a very rare phenomenon  
If it is an astronomical phenomenon which happens every 2000 year, then it would be of interest to just get some information (any information) about it.
2. The phenomenon is not very well known  
Often scientists discover new things about which they do not know anything. The Case Study is a starting point for their investigation, a way of getting ideas on what's really happening and a way to know how to proceed with more structured types of research.
3. It would not be ethical to induce the phenomenon  
Some things can never be studied fully because of the research ethics <sup>[8]</sup>. H.M. <sup>[9]</sup> is a man and a famous case study which gave insight about the brain, because of a chronic damage he got.

Very interesting to know for brain-surgeons, but we could never damage the brain to a person for research purposes.

## How are Groups Selected in Experiments?

Groups can be sampled [10] differently. In true experiments [5], there has to be at least one control group [11] and one experimental group. The groups should preferably be selected randomly [12].

Also, it is better for the true experimental design that the experimenter (the person in charge of the experiment) does not know in which group each person is. This is called a double-blind experiment [13].

Often, it is not possible to be that strict, for various reasons. A quasi-experimental [14] approach is accepted in many cases. In this design, the groups are not randomly selected, but measures are taken to lower the negative effects of having non-randomized groups. One strategy is to try to match persons in each group by attributes such as gender, age and socioeconomic status.

## What Was the Research Study Design Used for the Stanford Prison Experiment?

Although the Stanford Prison Experiment [15] was not a true experiment [5], it is often referred to as an experiment.

The study is only an experiment in the broad sense of the word: That an experiment is a study which deliberately induces a phenomenon or a state to study it.

Often though, an experiment can be thought of as a specific type of research method/design used in scientific inquiries, usually to study causality.

In that sense, the Stanford Prison Experiment was not an experiment, but an advanced field experiment [16], because the researchers were observing what was going on in some given conditions.

The study lacked a control group [11]; it can not be replicated and did not prove/disprove any causality.

## What Was the Independent Variables of the Stanley Milgram Experiment?

In the first 4 experiments, the independent variable of the Stanley Milgram Experiment [17] was the degree of physical immediacy of an authority. The dependent variable [18] was compliance. The closer the authority was, the higher percentage of compliance.

Later in the following series of experiments, the independent variable [19] (IV) varied:

- IV: The closeness of the learner (the person receiving shocks), compliance decreased the nearer the learner was perceived to be.
- IV: Gender differences: Did not seem to affect compliance much (but women report

higher distress).

- IV: Status of the authority: the lower perceived status, the less compliance.
- IV: Conformity [20]: What other subjects did affected compliance (If others complied, the chance was greater that the subject complied).

## **What Was the Independent/dependent Variable in the Tuskegee Syphilis Study?**

The independent variable [19] in the Tuskegee Syphilis Study [21] was what type of treatment participants with syphilis received, while the dependent variable [18] was how the participants and their diseases responded to the different treatments.

It was a highly unethical study [8] because it studied different treatments on individuals with syphilis, without giving the commonly known cure: penicillin is cheap and easy to distribute.

The scientists knew that the consequences of not giving the correct treatment would most probably mean death or severe problems for participants. The scientists did not even try to inform participants about the cure.

Hopefully a likewise unethical study would be impossible because of stricter regulations [22] in most countries today.

## **Has the Stanford Prison Experiment Helped Humans Understand Anything?**

It has. The Stanford Prison Experiment [15] never showed a causal relationship between the role and the influence the role has on the behavior and it was also criticized for a number of methodical and ethical [8] issues.

The impact of the study was that it helped get the attention to the fact that social influence [23] contributes more to the behavior of humans than the personality.

Many scientists got interested in the subject and it led to further investigations on how the role influences human behavior.

## **Can You Explain the Concept of Experimental Research?**

Experimental research [24] is a research method which was invented to meet one of the primary goals of research [25], to determine the causes for a phenomenon.

While qualitative research [26] normally aims to understand or explain a phenomenon, experimental research manipulates something to see whether the explanation is correct. Qualitative research often generates an explanation, a hypothesis about what might cause a phenomenon. The experiment tests the hypothesis.

In experimental research, the researcher seeks to control [27] as many variables as possible and reduce the effect from uncontrollable variables. This is done to be sure that the effect in the experiment is mostly due to the independent variable [19], the variable which the experimenter manipulates.

If the test confirms the researcher's hypothesis [28], it supports that there is some form of causality. When we know something causing a phenomenon, we have the opportunity to

predict and maybe even control the phenomenon in the future.

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