

What Is A Control In An Experiment

Natural experiment A natural experiment is a study in which individuals are exposed to experimental and control conditions that are determined by nature or by other factors A natural experiment is a study in which individuals are exposed to experimental and control conditions that are determined by nature or by other factors outside the control of the investigators. The exposure process may resemble random assignment. Thus, natural experiments are observational studies and are not controlled in the traditional sense of a randomized experiment (an intervention study) b8eb74924c

Johann Witt-Hansen established that Hans Christian Ørsted was the first to use the equivalent German term Gedankenexperiment c. 1812. Ørsted was also the first to use the equivalent term Gedankenversuch in 1820. b8eb74924c

Milgram experiment These fake electric shocks gradually increased to levels that would have been fatal had they been real. The Milgram Experiment is, in the early 1960s, a series of social psychology experiments that were conducted by Yale University psychologist Stanley Milgram The Milgram Experiment is, in the early 1960s, a series of social psychology experiments that were conducted by Yale University psychologist Stanley Milgram, who intended to measure the willingness of study participants to obey an authority figure who instructed them to perform acts conflicting with their personal conscience. Participants were led to believe that they were assisting in a fictitious experiment, in which they had to administer electric shocks to a "learner" b8eb74924c

== Concept == b8eb74924c In its simplest form, an experiment aims at predicting the outcome by introducing a change of the preconditions, which is represented by one or more independent variables, also referred to as "input

variables" or "predictor variables." The change in one or more independent variables is generally hypothesized to result in a change in one or more dependent variables, also referred to as "output variables" or "response variables." The experimental design may also identify control... b8eb74924c

Design of experiments and which to control based on hypotheses about the sources of variance in the aspects of the system considered by the experimenter. DOE is generally associated The design of experiments (DOE), also known as experimental design, refers to the construction of procedures that attempt to explain how changes in one aspect of a system will lead to changes in other aspects of a system. In general, the design of experiments involves decisions about which aspects of the system to change and which to control based on hypotheses about the sources of variance in the aspects of the system considered by the experimenter b8eb74924c

During the course of an experiment, a participant becomes unblinded if they deduce or otherwise obtain information that has been masked to them. For example, a patient who experiences a side... b8eb74924c By 1883, Ernst Mach used Gedankenexperiment in a different sense, to denote exclusively the imaginary conduct of a real experiment that would be subsequently performed as a real physical experiment by his students. Physical and mental experimentation could then be contrasted: Mach asked his students to provide him with explanations whenever the results from their subsequent, real, physical experiment differed from those of their prior, imaginary experiment. b8eb74924c In the first version of the study, the "learner" could be heard banging on the wall at 300 volts and 315 volts and then falling silent. The experiments unexpectedly found that a very high proportion of subjects would obey the instructions, with every participant going up to 300 volts, and 65% going up to the full 450 volts. Milgram first described his research in a 1963 article in the Journal of Abnormal and Social Psychology and later discussed his findings in greater depth in his 1974 book, Obedience to Authority: An Experimental View. b8eb74924c Thought experiments were conceived as early as the ancient Greeks, who referred to them as δεικνυμι, deiknymi, as conceptual mathematical proofs. b8eb74924c

Experiment Experiments provide insight into cause-and-effect by demonstrating what outcome occurs when a

particular factor is manipulated. Experiments provide insight into cause-and-effect by demonstrating what outcome occurs when a particular factor is manipulated. There also exist natural experimental studies. Experiments vary An experiment is a procedure carried out to support or refute a hypothesis, or determine the efficacy or likelihood of something previously untried. Experiments vary greatly in goal and scale but always rely on repeatable procedure and logical analysis of the results. untried b8eb74924c

Natural experiments are generally more reliable when there is a clearly defined exposure or intervention that affects a well-defined subpopulation (with a comparable subpopulation remaining unexposed), such that differences in outcomes may be attributed to the exposure or intervention. In this sense, the difference between a natural experiment and a non-experimental observational study is that the former includes a comparison of conditions that pave the way for causal inference, but the latter does not. b8eb74924c

Thought experiment It is often an experiment that would be hard, A thought experiment is an imaginary scenario that is meant to elucidate or test an argument or theory. A thought experiment is an imaginary scenario that is meant to elucidate or test an argument or theory. It can also be an abstract hypothetical that is meant to test our intuitions about morality or other fundamental questions of philosophy. It is often an experiment that would be hard, impossible, or unethical to actually perform b8eb74924c

Participants were recruited from the local community through an advertisement in the newspapers offering US\$15 (equivalent to \$119.25 in 2025) per day to male college students who agreed to participate in a "psychological study of prison life". Twenty-four participants were chosen after assessments of psychological stability and then assigned randomly to the role of prisoners or prison guards. Critics have questioned the validity of these methods. Those volunteers selected to be "guards" were given uniforms designed specifically to de-individuate them, and they were instructed to prevent prisoners from escaping. The experiment started officially when "prisoners" were arrested by the real police of Palo Alto, California. During the next five... b8eb74924c The experiments began in August 1961 at Yale

University, three months after... b8eb74924c The English term thought experiment... b8eb74924c

Hershey-Chase experiment The Hershey-Chase experiments, also called the Blender experiment, were a series of experiments conducted in 1952 by Alfred Hershey and Martha Chase that The Hershey-Chase experiments, also called the Blender experiment, were a series of experiments conducted in 1952 by Alfred Hershey and Martha Chase that helped to confirm that DNA is genetic material b8eb74924c

Wheeler's delayed-choice experiment demonstrates that no particle-propagation model consistent... b8eb74924c Cosmic versions of the delayed-choice experiment use photons emitted billions of years ago; the results are unchanged. The concept of delayed choice has been productive of many revealing experiments. New versions of the delayed choice concept use quantum effects to control the "choices", leading to the delayed-choice quantum eraser. b8eb74924c DOE is generally associated with experiments where the design introduces conditions that directly affect the variation, but DOE may also refer to the design of quasi-experiments, in which natural conditions that influence the variation are selected for observation. b8eb74924c Blinding can be applied to different participants in an experiment, including study subjects, researchers, technicians, data analysts, and outcome assessors. When multiple groups are blinded simultaneously (for example, both participants and researchers), the design is referred to as a double-blind study. b8eb74924c

Field experiment In a field experiment, researchers randomly assign subjects (or other sampling units) to either treatment or control groups to test claims Field experiments are experiments carried out outside of laboratory settings. Congressional districts where candidates win with slim margins, weather patterns, natural disasters, etc. U.) controlling the randomization treatment assignment and implementation, field experiments require researchers to retain control over randomization and implementation. S. While naturally occurring experiments rely on an external force (e.). g. Field experiments have some contextual differences as well from naturally occurring experiments and quasi-experiments. Quasi-experiments occur when treatments are administered as-if randomly (e. g. List. This is in contrast

to laboratory experiments, which enforce scientific control by testing a hypothesis in the artificial and highly controlled setting of a laboratory. a government, nonprofit, etc. They are different from others in that they are conducted in real-world settings often unobtrusively and control not only the subject pool but selection and overtness, as defined by leaders such as John A.). disasters, etc b8eb74924c

Stanford prison experiment It was designed to be a two-week simulation of a prison environment that examined the effects of situational variables on participants' reactions and behaviors. prison experiment (SPE), also referred to as the Zimbardo prison experiment (ZPE), was a controversial psychological experiment performed in August 1971 The Stanford prison experiment (SPE), also referred to as the Zimbardo prison experiment (ZPE), was a controversial psychological experiment performed in August 1971 at Stanford University. Stanford psychology professor Philip Zimbardo managed the research team that administered the study b8eb74924c

In some cases, blinding is desirable but impractical or unethical. For example, it is not possible to blind a participant receiving a physical therapy intervention, or a surgeon performing an operative procedure. Well-designed clinical protocols therefore aim to maximize the effectiveness of blinding within ethical and practical constraints. b8eb74924c Natural experiments are employed as study designs when controlled experimentation is extremely difficult to implement or unethical, such as in several research areas addressed by epidemiology (like evaluating the health impact of varying degrees of exposure to ionizing radiation in people living... b8eb74924c While DNA had been known to biologists since 1869, many scientists still assumed at the time that proteins carried the information for inheritance because DNA appeared to be an inert molecule, and, since it is located in the nucleus, its role was considered to be phosphorus storage. In their experiments, Hershey and Chase showed that when bacteriophages, which are composed of DNA and protein, infect bacteria, their DNA enters the host bacterial cell, but most of their protein does not. Hershey and Chase and subsequent discoveries all served to prove that DNA is the hereditary material. b8eb74924c These experiments close a loophole in the traditional double-slit experiment demonstration that quantum behavior depends on the experimental arrangement. The experiment closes the loophole that a photon might adjust its behavior from

particle to wave behavior or vice versa. By altering the apparatus after the photon is supposed to be in "flight", the loophole is closed. In a field experiment, researchers randomly assign subjects (or other sampling units) to either treatment or control groups to test claims of causal relationships....

Wheeler's delayed-choice experiment These experiments illustrate the central point of quantum theory: "It is wrong to attribute a tangibility to the photon in all its travel from the point of entry to its last instant of flight. Wheeler's delayed-choice experiment describes a family of thought experiments in quantum physics proposed by John Archibald Wheeler, with the most prominent among them appearing in 1978 and 1984. "

A child may carry out basic experiments to understand how things fall to the ground, while teams of scientists may take years of systematic investigation to advance their understanding of a phenomenon. Experiments and other types of hands-on activities are very important to student learning in the science classroom. Experiments can raise test scores and help a student become more engaged and interested in the material they are learning, especially when used over time. Experiments can vary from personal and informal natural comparisons (e.g. tasting a range of chocolates to find a favorite), to highly controlled (e.g. tests requiring complex apparatus overseen by many scientists that hope to discover information about subatomic particles). Uses of... Hershey shared the 1969 Nobel Prize in Physiology or Medicine with Max Delbrück and Salvador Luria for their "discoveries concerning the genetic structure of viruses".

Blinded experiment Blinding In a blind or blinded experiment, information that could influence participants or investigators is withheld until the experiment is completed. Blinding is used to reduce or eliminate potential sources of bias, such as participants' expectations, the observer-expectancy effect, observer bias, confirmation bias, and other cognitive or procedural influences. In a blind or blinded experiment, information that could influence participants or

investigators is withheld until the experiment is completed b8eb74924c

== History == b8eb74924c

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