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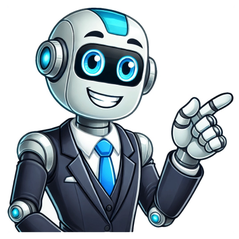

(Adjective) | Pronunciation: /mprkl/ The word empirical refers to knowledge, information, or conclusions based on observation, experience, or experiments rather than on theory or pure logic. As an adjective Relating to evidence gathered through direct experience, observation, or experimentation rather than abstract reasoning. Did You Know? The term empirical is widely used in science, medicine, and research to emphasize conclusions based on real-world data rather than assumptions! Etymology: Derived from the Greek empeirikos (), meaning experienced or skilled. Historical Usage: The term was first used in medical and scientific contexts in the 16th century to describe knowledge gained through direct experience. Cultural Influence: Today, empirical is a key term in scientific research, used to distinguish between tested knowledge and theoretical ideas. Example: The scientist relied on empirical data to support her hypothesis rather than mere speculation. Synonyms (words with similar meanings) Observational Experimental Evidence-based Practical Antonyms (opposite meanings) Theoretical Hypothetical Speculative Conceptual Word Tip: Empirical is often used in contrast to theoretical. If something is empirical, it has been tested or observed in real life. The doctor made an empirical diagnosis based on test results. His argument was weak because it lacked empirical evidence. The study provided empirical proof that meditation reduces stress. Challenge: Can you use empirical in a sentence? Share it in the comments! These words are commonly associated with empirical: Observation Experimentation Data-driven Scientific method Example: The phrase empirical research refers to studies based on real-world experiments and observations. Trending Now: The term is commonly used in scientific studies, psychology, and economics, especially when discussing research-based findings. Discuss: Is all knowledge truly empirical, or do some truths exist beyond observation? Word Puzzle: Unscramble this word E M P I R A C I L Quick Quiz: Which of these is an example of empirical knowledge?A) A dream about the futureB) A scientific experiment C) A philosophical debate Word Story Challenge: Write a short paragraph using empirical creatively! Share Your Thoughts: What is an example of empirical evidence youve come across in daily life? Join the discussion below!In psychology and medicine, empirical research is crucial for testing new treatments and understanding human behavior through data-driven studies.There is no knowledge apart from empirical facts. David Hume Did You Know? The scientific method is built on empirical principles, ensuring that theories are tested through real-world experiments before being accepted! Also found in: Thesaurus, Medical, Encyclopedia, Wikipedia.Related to empirical: Empirical probability verifiable: empirical evidence; practical; pragmatic; derived from or guided by experience or experimentNot to be confused with:empiric a person who depends on experience or observation alone; a quack; charlatanAbused, Confused, & Misused Words by Mary Embree Copyright 2007, 2013 by Mary Embree (m-pr-kl)adj.1. a. Relying on or derived from observation or experiment: empirical results that supported the hypothesis.b. Verifiable or provable by means of observation or experiment: empirical laws.2. Guided by practical experience and not theory, especially in medicine.American Heritage Dictionary of the English Language, Fifth Edition. Copyright 2016 by Houghton Mifflin Harcourt Publishing Company. Published by Houghton Mifflin Harcourt Publishing Company. All rights reserved. (mprkl) , or adj1. derived from or relating to experiment and observation rather than theory2. (Medicine) (of medical treatment) based on practical experience rather than scientific proof3. (Philosophy) philosophy a. (of knowledge) derived from experience rather than by logic from first principles. Compare a priori, a posteriorib. (of a proposition) subject, at least theoretically, to verification. Compare analytic4, synthetic44. (Medicine) of or relating to medical quackeryCollins English Dictionary Complete and Unabridged, 12th Edition 2014 HarperCollins Publishers 1991, 1994, 1998, 2000, 2003, 2006, 2007, 2009, 2011, 2014 (mpr kl) adj. 1. derived from experience or experiment. 2. depending upon experience or observation alone, without using scientific method or theory, esp. in medicine. 3. verifiable by experience or experiment. Random House Kernerman Webster's College Dictionary, 2010 K Dictionaries Ltd. Copyright 2005, 1997, 1991 by Random House, Inc. All rights reserved. (m-pr-kl) Relying on or derived from observation or experiment rather than theory: empirical results prove the theory.The American Heritage Student Science Dictionary, Second Edition. Copyright 2014 by Houghton Mifflin Harcourt Publishing Company. Published by Houghton Mifflin Harcourt Publishing Company. All rights reserved. Adj.1.empirical - derived from experiment and observation rather than theory; "an empirical basis for an ethical theory"; "empirical laws"; "empirical data"; "an empirical treatment of a disease about which little is known"theoretic, theoretical - concerned primarily with theories or hypotheses rather than practical considerations; "theoretical science"2.empirical - relying on medical quackery; "empiric treatment"archaicism, archaism - the use of an archaic expressionBased on WordNet 3.0, Farlex clipart collection. 2003-2012 Princeton University, Farlex Inc. empiricadjective first-hand, direct, observed, practical, actual, experimental, pragmatic, factual, experiential There is no empirical evidence to support his theory. assumed, academic, speculative, hypothetical, putative, theoretic(al), conjecturalCollins Thesaurus of the English Language Complete and Unabridged 2nd Edition. 2002 HarperCollins Publishers 1995, 2002 [emprkl] ADJ [method] empricoCollins Spanish Dictionary - Complete and Unabridged 8th Edition 2005 William Collins Sons & Co. Ltd. 1971, 1988 HarperCollins Publishers 1992, 1993, 1996, 1997, 2000, 2003, 2005 [mprkl] adj [data, evidence, research, study] empiriqueCollins English/French Electronic Resource. HarperCollins Publishers 2005 Collins German Dictionary Complete and Unabridged 7th Edition 2005. William Collins Sons & Co. Ltd. 1980 HarperCollins Publishers 1991, 1997, 1999, 2004, 2005, 2007 [mprk/l] adj empirico/aCollins Italian Dictionary 1st Edition HarperCollins Publishers 1995English-Spanish/Spanish-English Medical Dictionary Copyright 2006 by The McGraw-Hill Companies, Inc. All rights reserved. Want to thank TFD for its existence? Tell a friend about us, add a link to this page, or visit the webmaster's page for free fun content. Link to this page: He was not so much interested in surgery as in medicine, which, a more empirical science, offered greater scope to the imagination.It is your own empirical generalization, and it is correct.Human life and its persons are poor empirical pretensions.I think it could be shown that this statement is hardly correct; but naturalists differ most widely in determining what characters are of generic value; all such valuations being at present empirical. Moreover, on the view of the origin of genera which I shall presently give, we have no right to expect often to meet with generic differences in our domesticated productions.We may take as one of the best and most typical representatives of this school the Austrian psychologist Brentano, whose "Psychology from the Empirical Standpoint,"* though published inEmpirical methods, including data analytics, allow extracting knowledge and insights from the data that organizations collect from their processes and tools, and from the opinions of the experts who practice these processes and methods.The Empirical family of companies, with its 19+ years of operational experience, can decrease your time to market by 20%-30% and achieve regulatory clearance--the first time. View synonyms for empiricalderived from or guided by direct experience or by experiment, rather than abstract principles or theory.Empirical evidence of changes in kelp consumption was gathered by measuring the bite marks in seaweed fronds.Synonyms: pragmatic, firsthand, practicalAntonyms: theoretical, secondhanddepending upon experience or observation alone, without using scientific method or theory, and hence sometimes insufficiently authoritative, especially as in medicine.That is nothing but an empirical conclusion with no regard for the laws of thermodynamics.Synonyms: pragmatic, firsthand, practicalAntonyms: theoretical, secondhandprovable or verifiable by experience or experiment, as scientific laws.Theoretical physics is criticized for producing complex concepts that are mathematical, not empirical.derived from or relating to experiment and observation rather than theory(of medical treatment) based on practical experience rather than scientific proofphilosophy(of knowledge) derived from experience rather than by logic from first principles Compare a priori a posteriori(of a proposition) subject, at least theoretically, to verification Compare analytic syntheticof or relating to medical quackeryCollins English Dictionary Complete & Unabridged 2012 Digital Edition William Collins Sons & Co. Ltd. 1979, 1986 HarperCollins Publishers 1998, 2000, 2003, 2005, 2006, 2007, 2009, 2012Collins English Dictionary Complete & Unabridged 2012 Digital Edition William Collins Sons & Co. Ltd. 1979, 1986 HarperCollins Publishers 1998, 2000, 2003, 2005, 2006, 2007, 2009, 2012Relying on or derived from observation or experiment.empiricalness nounempirically adverbantiempirical adjectivenonempirical adjectiveoverempirical adjectivesemiempirical adjectiveunempirical adjectiveOrigin of empirical1First recorded in 156070; empiric + -al 1Examples have not been reviewed.Now, a new ProPublica data analysis adds empirical weight to the mounting evidence that abortion bans have made the common experience of miscarriage which occurs in up to 30% of pregnancies far more dangerous.While Fishkins book takes account of the major issues in political philosophy and political science that have been debated in recent decades, whats most compelling about it are his empirical results.In each case, debates over empirical facts have been entangled with identity, religion, economics, and power, creating fault lines that persist across countries and generations.In American Mirage, she cites empirical evidence suggesting a strong correlation between local Shark Tank viewership and queries at Small Business Administration centers.We have tons of data and all manner of empirical and other forms of evidence that show how race and racism structure American society and people's life outcomes and other opportunities and experiences.experimentalfactualobservationalempiricempirical formulaBrowse#aabbccddeeffgghhiijjkkllmmnnooppqqrrssttuuvvwwxxyyzzAboutCareersContact usCookies, terms, & privacyHelpFollow usGet the Word of the Day every day! 2025 Dictionary.com, LLC based on experiments or experience rather than ideas or theoriesempirical evidence/knowledge/researchan empirical study opposite theoreticalTopics Scientific researchc1Oxford Collocations DictionaryEmpirical is used with these nouns: See full entry See empirical in the Oxford Advanced American DictionarySee empirical in the Oxford Learner's Dictionary of Academic English Not to be confused with Evidence-based research.Empirical research is research using empirical evidence. It is also a way of gaining knowledge by means of direct and indirect observation or experience. Empiricism values some research more than other kinds. Empirical evidence (the record of one's direct observations or experiences) can be analyzed quantitatively or qualitatively. Quantifying the evidence or making sense of it in qualitative form, a researcher can answer empirical questions, which should be clearly defined and answerable with the evidence collected (usually called data). Research design varies by field and by the question being investigated. Many researchers combine qualitative and quantitative forms of analysis to better answer questions that cannot be studied in laboratory settings, particularly in the social sciences and in education.A scientist gathering data for her researchIn some fields, quantitative research may begin with a research question (e.g., "Does listening to vocal music during the learning of a word list have an effect on later memory for these words?") which is tested through experimentation. Usually, the researcher has a certain theory regarding the topic under investigation. Based on this theory, statements or hypotheses will be proposed (e.g., "Listening to vocal music has a negative effect on learning a word list."). From these hypotheses, predictions about specific events are derived (e.g., "People who study a word list while listening to vocal music will remember fewer words on a later memory test than people who study a word list in silence."). These predictions can then be tested with a suitable experiment. Depending on the outcomes of the experiment, the theory on which the hypotheses and predictions were based will be supported or not,[1] or may need to be modified and then subjected to further testing.The experimental method has evolved over the ages, with many scientists contributing to its foundation and development. In ancient times, Greek philosophers, such as Aristotle, relied on observation and rational inference in their studies. Aristotle, for example, rejected exclusive reliance on logical deduction, emphasizing the importance of observation in understanding nature.During the Middle Ages, Muslim scientists significantly advanced the experimental method. Jabir ibn Hayyan, known as the father of chemistry, introduced experimental methodology into chemistry and developed chemical processes such as crystallization, calcination, and distillation. He also discovered important acids like sulfuric and nitric acid, expanding the possibilities of chemical experiments. The famous optics scientist Alhazen (Ibn al-Haytham) was among the first to rely on experimentation in studying light and vision. In his book Book of Optics, he employed a scientific method based on observation, experimentation, and mathematical proof, making him a pioneer of the modern scientific method.[2]These scientific approaches were transmitted to Europe through translations, influencing the development of modern scientific methodology. European scientists, such as Francis Bacon, were inspired by the works of Muslim scholars in refining the experimental method. The researcher Robert Briffault, in his book Making of Humanity, states:"It was under their successors at Oxford School (that is, successors to the Muslims of Spain) that Roger Bacon learned Arabic and Arabic Sciences. Neither Roger Bacon nor later namesake has any title to be credited with having introduced the experimental method. Roger Bacon was no more than one of apostles of Muslim Science and Method to Christian Europe".[3]The term empirical was originally used to refer to certain ancient Greek practitioners of medicine who rejected adherence to the dogmatic doctrines of the day, preferring instead to rely on the observation of phenomena as perceived in experience. Later empiricism referred to a theory of knowledge in philosophy which adheres to the principle that knowledge arises from experience and evidence gathered specifically using the senses. In scientific use, the term empirical refers to the gathering of data using only evidence that is observable by the senses or in some cases using calibrated scientific instruments. What early philosophers described as empiricist and empirical research have in common is the dependence on observable data to formulate and test theories and come to conclusions.The researcher attempts to describe accurately the interaction between the instrument (or the human senses) and the entity being observed. If instrumentation is involved, the researcher is expected to calibrate his/her instrument by applying it to known standard objects and documenting the results before applying it to unknown objects. In other words, it describes the research that has not taken place before and their results.In practice, the accumulation of evidence for or against any particular theory involves planned research designs for the collection of empirical data, and academic rigor plays a large part of judging the merits of research design. Several typologies for such designs have been suggested, one of the most popular of which comes from Campbell and Stanley.[4] They are responsible for popularizing the widely cited distinction among pre-experimental, experimental, and quasi-experimental designs and are staunch advocates of the central role of randomized experiments in educational research.Accurate analysis of data using standardized statistical methods in scientific studies is critical to determining the validity of empirical research. Statistical formulas such as regression, uncertainty coefficient, t-test, chi square, and various types of ANOVA (analyses of variance) are fundamental to forming logical, valid conclusions. If empirical data reach significance under the appropriate statistical formula, the research hypothesis is supported. If not, the null hypothesis is supported (or, more accurately, not rejected), meaning no effect of the independent variable(s) was observed on the dependent variable(s).The result of empirical research using statistical hypothesis testing is never proof. It can only support a hypothesis, reject it, or do neither. These methods yield only probabilities. Among scientific researchers, empirical evidence (as distinct from empirical research) refers to objective evidence that appears the same regardless of the observer. For example, a thermometer will not display different temperatures for each individual who observes it. Temperature, as measured by an accurate, well calibrated thermometer, is empirical evidence. By contrast, non-empirical evidence is subjective, depending on the observer. Following the previous example, observer A might truthfully report that a room is warm, while observer B might truthfully report that the same room is cool, though both observe the same reading on the thermometer. The use of empirical evidence negates this effect of personal (i.e., subjective) experience or time.This section may be confusing or unclear to readers. Please help clarify the section. There might be a discussion about this on the talk page. (September 2024) (Learn how and when to remove this message)The varying perception of empiricism and rationalism shows concern with the limit to which there is dependency on experience of sense as an effort of gaining knowledge. According to rationalism, there are a number of different ways in which sense experience is gained independently for the knowledge and concepts. According to empiricism, sense experience is considered as the main source of every piece of knowledge and the concepts. In general, rationalists are known for the development of their own views following two different way. First, the key argument can be placed that there are cases in which the content of knowledge or concepts end up outstripping the information. This outstripped information is provided by the sense experience (Hjrland, 2010, 2). Second, there is construction of accounts as to how reasoning helps in the provision of addition knowledge about a specific or broader scope. Empiricists are known to be presenting complementary senses related to thought. First, there is development of accounts of how there is provision of information by experience that is cited by rationalists. This is insofar for having it in the initial place. At times, empiricists tend to be opting skepticism as an option of rationalism. If experience is not helpful in the provision of knowledge or concept cited by rationalists, then they do not exist (Pearce, 2010, 35). Second, empiricists have a tendency of attacking the accounts of rationalists, while considering reasoning to be an important source of knowledge or concepts. The overall disagreement between empiricists and rationalists shows major concerns about how knowledge is gained with respect to the sources of knowledge and concepts. In some of the cases, disagreement on the point of gaining knowledge results in the provision of conflicting responses to other aspects as well. There might be a disagreement in the overall feature of warrant, while limiting the knowledge and thought. Empiricists are known for sharing the view that there is no existence of innate knowledge and rather that is derivation of knowledge out of experience. These experiences are either reasoned using the mind or sensed through the five senses human possess (Bernard, 2011, 5). On the other hand, rationalists are known to be sharing the view that there is existence of innate knowledge and this is different for the objects of innate knowledge being chosen. In order to follow rationalism, there must be adoption of one of the three claims related to the theory that are deduction or intuition, innate knowledge, and innate concept. The more there is removal of concept from mental operations and experience, there can be performance over experience with increased plausibility in being innate. Further ahead, empiricism in context with a specific subject provides a rejection of the corresponding version related to innate knowledge and deduction or intuition (Weiskopf, 2008, 16). Insofar as there is acknowledgement of concepts and knowledge within the area of subject, the knowledge has major dependence on experience through human senses.Empirical cycle according to A.D. de GrootA.D. de Groot's empirical cycle:[5]Observation: The observation of a phenomenon and inquiry concerning its causes.Induction: The formulation of hypotheses - generalized explanations for the phenomenon.Deduction: The formulation of experiments that will test the hypotheses (i.e. confirm them if true, refute them if false).Testing: The procedures by which the hypotheses are tested and data are collected.Evaluation: The interpretation of the data and the formulation of a theory - an abductive argument that presents the results of the experiment as the most reasonable explanation for the phenomenon.Case studyFactField researchScientific method^ Goodwin, C. J. (2005). Research in Psychology: Methods and Design. USA: John Wiley & Sons, Inc.^ Tbakhi, Abdelghani; Amr, Samir S. (2007). "Ibn Al-Haytham: father of modern optics". Annals of Saudi Medicine. 27 (6): 464467. doi:10.5144/0256-4947.2007.464. ISSN0256-4947. PMC6074172. PMID18059131.^ Robert Briffault. (1919). Making of Humanity. (pp. 200) London: George Allen & Unwin Ltd.^ Campbell, D. & Stanley, J. (1963). Experimental and quasi-experimental designs for research. Boston: Houghton Mifflin Company.^ Heitink, G. (1999). Practical Theology: History, Theory, Action Domains: Manual for Practical Theology. Grand Rapids, MI: Wm. B. Eerdmans Publishing, p. 233. ISBN9780802842947 The dictionary definition of empirical research at WiktionarySome Key Concepts for the Design and Review of Empirical Research Archived 2021-04-16 at the Wayback MachineRetrieved from " is empirical probability calculated. What is empirical probability in statistics. Empirical probability distribution. What is empirical probability.