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Q 1 Search V Research

Search and Research are two words in English language that are confusing for students learning English. This is because of the similarities between the two words as both contain search in them. However search is not Research as you look for something when you are searching whereas Research is a systematic way of investigation of things to increase our knowledge base. This is not all as there are many more difference between Search & Research that will be discussed in detail.

Search

If NASA sends Curiosity to Mars it is for the purpose of Searching at a place if you are looking for some information on Google you are conducting a Search but when you are looking for your lost keys in the dark outside your house it is also searching if NASA looking or searching life in a planet.

Research

As described above research is a systemic process of analyzing information to establish facts and to arrive at new conclusions. Taking up the example of NASA we see that the space missions on which it sends shuttles conduct search and return with all the findings. This information is analyzed to establish facts and to arrive at certain conclusions through research by scientists at NASA. Merely looking at the subject matter randomly inside different books in a library cannot be called research. Similarly downloading relevant subject matter from different books in a library cannot be called research. It is when a student starts to analyze the collected material and reflects upon it to reach some conclusions that are new and hitherto unknown that he can be said to have indulged in research.

Research Versus Search

	Basis of Comparison	Research	Search
①	Expertise	Qualified Researchers	No qualification
②	Goal	Uncover new information Add knowledge Identify facts	Find something
③	Duration	Long	often short
④	Process	Has steps and stages	No layout
⑤	Regulation	Monitored and regulated	Not monitored or regulated
⑥	inter-dependence	dependent on research result	Not dependent



Q 1 End

Q2

Scientific knowledge

Scientific knowledge refers to a knowledge that is based on scientific methods which are supported by adequate validation. There are four primary factors that are used to determine whether evidence amounts to scientific knowledge

- 1 where it has been tested
- 2 whether it has been subject to peer review and publication
- 3: The known or potential rate of error and
- 4: the degree of acceptance within the scientific community.

Scientific knowledge refers to knowledge of a person that must be based on the methods and procedures of science rather than on subjective belief or unsupported speculation. Science is about understanding the world but it's a process rather than a body of knowledge. Scientific knowledge is what we learn from the scientific process which involves experimenting and collecting data.

Key Elements and Themes in Scientific Knowledge

systems are sets of interconnected parts forming a complex whole. In science systems are a way of separating the world into sets of parts to be studied. For example you may study the oil inside an engine and how it is affected by heat. If your system is the oil itself you might not concern yourself with any effects on the engine.

on the other hand you may study the variation in the temperature across the entire engine including the oil meaning that the whole engine and its contents is your system. The way you define your system has an impact on how you conduct your research.

Ask a question



Hypothesis ←



Collect Data



Analyze Data



Does it Fit? —



communicate

overview of Scientific method

Q2 (B) Scientific Research

Research is a logical and systematic search for new and useful information on a particular topic. Research is important both in scientific and non scientific fields. In our life new problems events phenomena and processes occur every day. practically implementable solutions and suggestions are required for tackling new problems that arise. Scientists have to undertake research on them and find their causes solutions, explanations, and Applications

The Research is broadly classified into two main classes. 1 Fundamental or Basic Research
2 Applied research. In any particular field normal research and revolutionary research. In any particular field normal research is performed in accordance with a set of rules, concepts and procedures called a paradigm which is well accepted by the scientists working in that field. In addition the basic and applied researches can be quantitative or qualitative or even both (mixed Research)

1 Fundamental Research.

Basic research is an investigation on basic principles and reasons for occurrence of a particular event or process or phenomena

It is also called theoretical research. study or investigation of some nature of phenomena or relating to pure science. Basic research is mostly not lead to immediate use of application.

③ Applied Research

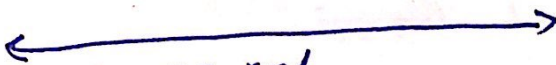
In this type of research one solved certain problems employing well known and accepted theories and principles. Most of the experimental research case studies are essentially applied research. Applied research also is helpful for basic research.

Qualitative Research

It is non-numerical descriptive, applies reasoning and uses of words. Its aim is to get the meaning, feeling and describe the situation. Qualitative data cannot be graphed. It is exploratory. Investigates the why and how of decisions making.

Quantitative Research

It is numerical non descriptive applies statistics or mathematics and uses numbers. It is an iterative process whereby evidence is evaluated. The results are then presented in tables and graphs also. It is conclusive. This type of research investigates the what, where and when of decisions making.



Q3

Inductive Research

Inductive approach also known as inductive reasoning starts with the observation and theories are proposed towards the end of the research process as a result of observations. Inductive research involves the search for pattern from observation and the development of explanations theories for those patterns through series of hypothesis. No theories or hypothesis would apply in inductive studies at the beginning of the research and the researcher is free in terms of altering the direction for the study after the research process had commenced.

It is important to stress that inductive approach does not imply disregarding theories when formulating research questions and objectives. This approach aim to generate meanings from the data set collected in order to identify patterns and relationship to build a theory however inductive approach does not prevent the researcher from using existing theory to formulate the research question to be explored. This type is based on learning from experience.

When there is little to no existing literature on a topic it is common to perform inductive research because there is no theory to test. The inductive approach consists of three stages

① Observation

A low cost airline flight is delayed
Dogs A and B have fleas

② Observation of Pattern

Another 20 flights from low cost airlines are delayed
All observed dogs have fleas

③ Develop a theory

Low cost airlines always have delays
All dogs have delayed flies

Limitation of an inductive approach

A conclusion drawn on the basis of an inductive method can never be proven but it can be invalidated.

Example: you observe 1000 flights from low cost airlines - All of them experience a delay which is in line with your theory. However you can never prove that flight 1001 will also be delayed.

Q36

Deductive Research

A deductive approach is concerned with developing a hypothesis based on existing theory and then designing a research strategy to test the hypothesis. It has been stated that deductive means reasoning from the particular theory or case example it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances.

Deductive approach can be explained by the means of hypothesis which can be derived from the propositions of the theory. In other words deductive approach is concerned with deducing conclusions from premises or propositions. Deductions begin with an expected pattern that is tested against observations whereas induction begins with observation and seeks to find a pattern within them.

Advantages of deductive Approach

- ① Possibility approach to explain causal relationship between concepts and variables.
- ② Possibility to measure concept quantitatively.
- ③ Possibility to generalize research findings to a certain extent.

Inductive and deductive approaches Comparison

The main difference between inductive and deductive approaches to research is that whilst a deductive approach is aimed at testing theory an inductive approach is concerned with the generation of new theory emerging from the data.

A deductive research usually begins with a hypothesis whilst an inductive approach will usually use research questions to narrow the scope of the study. For deductive approaches the emphasis is generally on causality whilst for inductive approaches the aim is usually focused on exploring new phenomena or looking at previously researched phenomena from a different perspective.

Inductive research are generally associated with qualitative research while deductive are generally associated with quantitative research.

←—————→
End