

BÀI 2: TÀI LIỆU KHOA

Before starting...

Select high-quality journal papers in your research area:

- 1 state-of-art, review research paper in your research area
- 3 research journal papers related to your work

Think...

- About your dissertation....
- Recently completed project

What is Research ?

Research is a careful and systematic process of inquiry to find answers to problem of interest.

Research includes: use of facts, use of theories, data analysis, sampling, doing an experiment, going to library to read up on a topic

To do 'research' is to investigate the problem systematically and thoroughly

Goal of research is to solve 'problem' of interest.

Research Terminology

'research methodology'

The study of research methods

A singular that does not admit of a plural

'research method'

The manner in which a particular project is undertaken

It comprises one or more research techniques

'research technique'

A specific means, approach or tool-and-its-use, whereby data is gathered and analysed, and inferences are drawn

Aims of Research

- Describe
- Predict
- Explain
- Interpret

Describe

Descriptive studies are designed primarily to describe what is going on or what exists

In polling cases, we want to know what percent of the population would vote for a party in next election not why such a distribution occurs

Describe about an algorithm, a method, an object, etc.

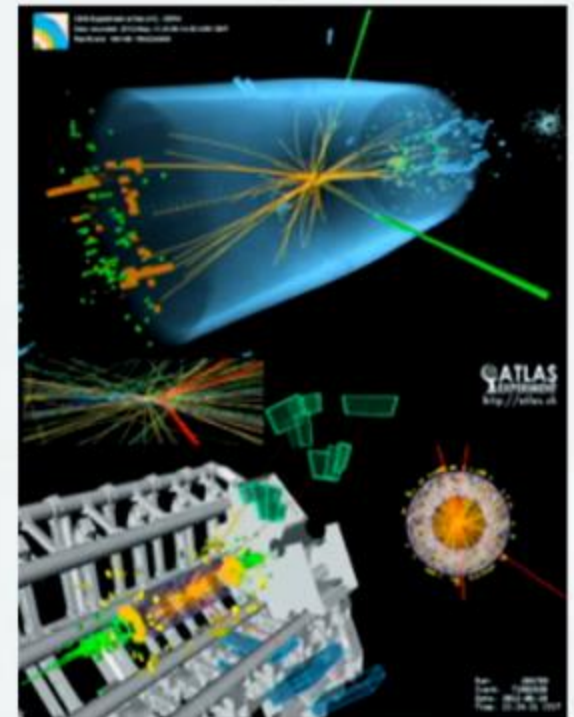


Explain

Explain phenomena by establishing correlations and postulating a causal mechanism (called a 'theory' or its testable part, a 'hypothesis') to explain the events.

It may be hypothesized that since lower mortgage rates cheapen the user cost of housing, they tend to encourage people to buy houses. Conversely, higher mortgage rates tend to depress housing demand

Higgs boson



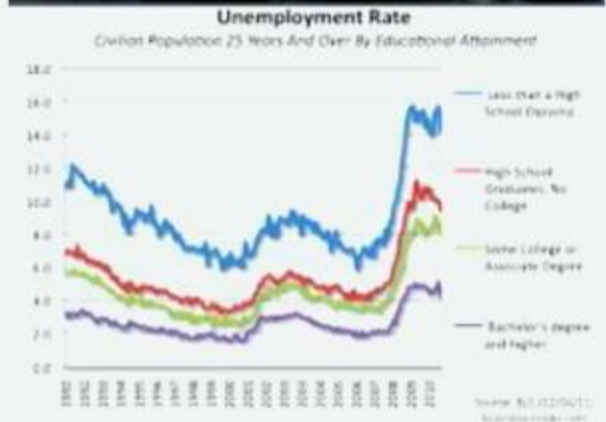
Source: Wikipedia

Interpret

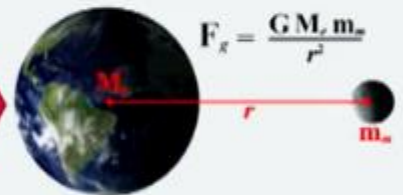
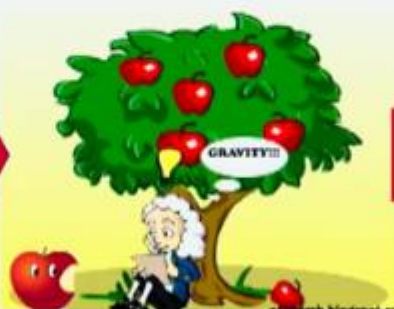
Understanding or interpreting the reasons and intentions behind individual actions.

A researcher may want to know how an individual makes housing choices or the meaning of a 'home' rather than aggregates of housing demand.

We may want to know how it feels to be unemployed rather than aggregates such as the unemployment rate.



Aims of Research



Describe the growing process of an apple.

Predict if an apple will fall.

Explain phenomena by establishing correlations and postulating a causal mechanism on how the apple falls

Interpret the reasons on how the apple falls

Aims of Research: For your research

Define the type of aim of each selected paper and justify it (WHY?):

- Describe
- Predict
- Explain
- Interpret

Aim and Learning outcomes

The aim of the session is understand the importance of enquiry in research process.

Learning outcomes

At the end of this course you are expected

- To understand the theoretical importance of enquiry
- To apply the gained knowledge to practice

What is enquiry

question: an instance of questioning; "there was a question about my training";
"we made inquiries of all those who were present"

www.cogsci.princeton.edu/cgi-bin/webwn

inquiry: a search for knowledge; "their pottery deserves more research than it has received"

www.cogsci.princeton.edu/cgi-bin/webwn

inquiry: a systematic investigation of a matter of public interest

www.cogsci.princeton.edu/cgi-bin/webwn

Research question: For your research project

Define the research question

- for each paper and
- for your project.

The nature of enquiry

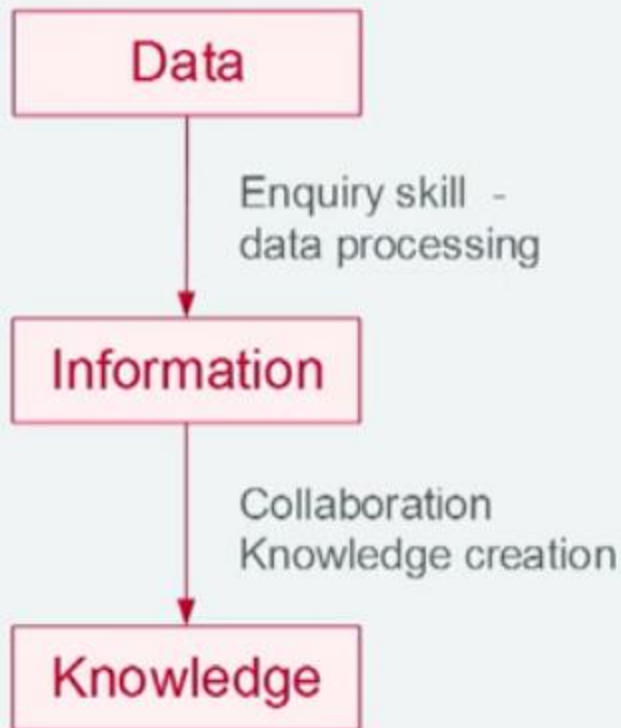
Data – is the term we use for the mass of routine or purposefully acquired material that we have available.

Information – is the meaningful material that we extract from available data because of its potential to inform our future actions and decision-making.

Knowledge – is the transformation of data and information into shared, collectively owned and institutionally specific knowledge as a result of a process of social processing.

Action – research impact

The nature of enquiry



Weekly Weather Record Sheet

Day of the Week	Weather	Temperature
Sunday		_____ °C
Monday		_____ °C
Tuesday		_____ °C
Wednesday		_____ °C
Thursday		_____ °C
Friday		_____ °C
Saturday		_____ °C

Average Daily temperatures (degrees C)



Winter is cold
Summer is hot

The nature of enquiry: For your research project

Define the nature of enquiry in each paper and justify your choice (WHY?)

- Data
- Information
- Knowledge

Define the nature of enquiry for your project and justify your choice (WHY?)

Three linked elements of the enquiry process

- The data reduction and organisation
- Exploration, explanation and analysis of the data
- Interpretation and recommendations

What Kinds of Research Are There?

Qualitative approaches

- are used where the researcher is interested in analysing meaning without regard for numerical values.

Quantitative approaches

- focus on numerical values which are described to people's actions, speech, attitudes and so on.

Triangulated research

- attempts to produce more robust methods of enquiry than qualitative and quantitative research
- uses two or more methods

Research structure: Example

