

COMU2030 Final Exam Notes

Lecture 1B: Scientific thinking (Babbie: Ch.1)

1. Seeking reality

- Knowledge of reality through:
- ✓ Agreement reality: science exploring the reality of things, subject to: logic(it makes sense), empirical experience (it doesn't contradict actual observation)
- ✓ Epistemology: science of knowing
- ✓ Methodology: science of finding out

Seeking reality through human inquiry

- Human want to predict the future
- We tend to rely on causal reasoning: the future is caused in part by the present (e.g. We learnt that swimming beyond the reef may bring an unhappy encounter with a shark; study hard will get a better result)
- We also rely on probabilistic reasoning: the effect is more likely to occur when the cause is present than when it is absent (e.g. We recognize the danger of swimming beyond the reef, without believing that every such swim will be fatal)

Seeking reality through tradition

- Our knowledge base to date
- E.g. we inherit culture and values→ this become our accepted knowledge

Seeking reality through authority

- New knowledge is constant
- Can't rely on tradition
- Trust in the new knowledge as 'real' depends on the messenger
- E.g. Doctor vs politician when deciding on the health effects of a proposed mine

2. Errors in ordinary human inquiry and scientific solutions

- a) Inaccurate observations (e.g. how long was the bus trip?)
 - Measurement devices offer accuracy
- b) Overgeneralization (e.g. Seeing 2 buses in quick succession is generalized into 'there are always buses')
 - Seeking sufficiently large and representative samples
 - Replication of the evidence
- c) Selective observation (e.g. Gender stereotypes)

- Broaden the population- more groups, regions in future research
- d) Illogical reasoning (e.g. Gambler's fallacy)

- Repeating a research study

3. Science

- Two pillars of scientific understanding: make sense, correspond with what we observe (logic + observation)

Scientific enterprise:

- Theory (logic)
- Data collection (observation)
- Data analysis (patterns in what is observed & comparison with previous observations)

*Social science= theory+data collection+data analysis

4. Theory

- Theory: a systematic explanation for the observations that relate to a particular aspect of life
- E.g. interested in obesity. Suspect obesity is influenced by socio-economic status
- Social science theory has to do with what is, not with what should be
- A theory is used to explain what happens in society and what we do in practice
 - ➔ We cannot have one without the other
 - ➔ To understand practice, you need to learn theory
- Social science can help us know what is and why

Fundamental bases of theory

- Social regularities (patterns) e.g. Labour voters will vote for a labour candidate
- Aggregate (systems) not individuals (a person doesn't constitute a pattern)
- Explore concepts by way of :
 - ➔ Attributes: characteristics or qualities that describe a person/ thing (e.g. female, Asians, intelligent, dishonest)
 - ➔ Variables: logical sets of attributes (e.g. occupation: farmer, professor; age, gender, ethnicity, income)

Variables

- Theories seek to explain the relationship we might logically expect to exist between variables

- Theory explains the impact on the dependent variable of the independent variable
--e.g. weight (DV) is dependent on the consumption of 3L bottles of Coke (IV)
- The independent variable may, in another examination of a relationship, be the dependent variable--e.g. the consumption of 3L bottles of Coke (DV now) may be the dependent variable to IV variable price of 3L bottles

(Babbie P.16) Because prejudice depends on something → DV which depends on education → IV; although the educational levels of the people being studied vary, that variation is independent of prejudice

- Educational variations can be depends on something- such as educational level of our subjects' parents. People whose parents have a lot of education than are those whose parents have little → the subject's education is the DV and the parents' education is the IV
- IV is the cause and DV is the effect---e.g. income (DV) is dependent on gender (IV)

5. Concepts of social research

a) Ideographic v. Nomothetic

- Ideographic(causal reasoning): an approach to explanation which seeks to exhaust the idiosyncratic causes of a particular something--- e.g. all the reasons for you to choose UQ; the factors why you have done poorly in the exams
- Nomothetic: an approach to explanation which seeks to identify a few factors that generally impact a class of something---e.g. top 3 reasons for high school leavers to choose UQ; whether or not you study in a group

b) Inductive v. Deductive

- Inductive: where general principles are developed from specific observations; from specific to general---e.g. 10 car crashes are examined in great detail and factors are identified as contributing to the crashes

Deductive: where specific expectations are developed on the basis of general principles; from general to specific---e.g. texture of road surface, speed &