Quantitative methods

Week #1

Gergely Daróczi

Corvinus University of Budapest, Hungary

8 February 2013

Notes

Outline

Notes

Resources

Online and offline

My homepage:

http://ppke.snowl.net

My e-mail address:

daroczi.gergely@btk.ppke.hu

Required readings:

- Singleton, R. A. Jr. and Bruce C. Straits (1999): *Approaches to Social Research*. Third Edition. Oxford University Press: New York/Oxford.
- Das Gupta, P. *Standardization and decomposition of rates*. A user's manual. http://www.census.gov/popest/research/p23-186.pdf, pp. 1-7
- P. J. Bickel, E. A. Hammel and J. W. O'Connell (1975): Sex Bias in Graduate Admissions: Data from Berkeley. *Science*, Vol. 187 no. 4175 pp. 398-404
- Darrel Huff (1993): *How to lie with statistics*. W. W. Norton & Company

Notes

Final examination questions

Comprehensive exam

Singleton, R. A. Jr. and Bruce C. Straits (1999): Approaches to Social Research. Third Edition. Oxford University Press: New York/Oxford.

Questions:

1. What is reliability? How do the main rules concerning the order of survey questions improve the reliability and validity of survey data? (pp. 113-117, 292-296)
2. What is meant by probability sampling? How do stratification and multistage cluster sampling affect sampling errors? Why? (pp. 141-142, 145-156)
3. What are the main types of non-probability sampling? Explain why these types do not meet the criteria of probability samples. (pp. 157-169)
4. What factors affect the desired sample size? (pp. 163-169)

Syllabus?

Notes

Natural and social sciences

A few examples

Determining the eye color of

- fruit/vinegar flies,

Notes

Natural and social sciences

A few examples

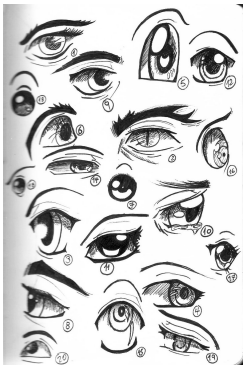
Determining the eye color of

- fruit/vinegar flies,
- horses,

Notes

Natural and social sciences
A few examples

Determining the eye color of
- fruit/vinegar flies,
- horses,
- humans.

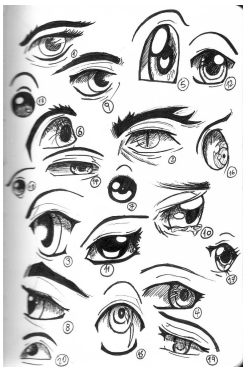


Notes

Natural and social sciences
A few examples

Determining the eye color of
- fruit/vinegar flies,
- horses,
- humans.

Determining the “best” ice-cream in the world:

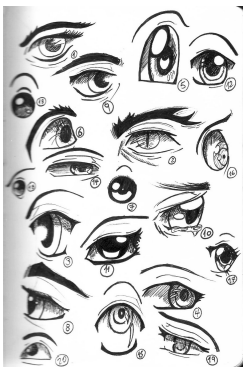


Notes

Natural and social sciences
A few examples

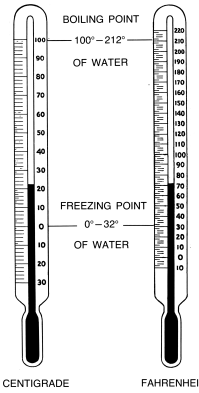
Determining the eye color of
- fruit/vinegar flies,
- horses,
- humans.

Determining the “best” ice-cream in the world:
- with recipes revised by chemists,
- with electroencephalography,
- survey questionnaire.



Notes

Natural and social sciences
A comparison



Thermometer:

- different scales,
- interaction,
- measuring high/low values,
- other possible errors.

Measuring mood and happiness:

- monitoring body signs,
- writing a diary or a blog,
- tailing people. . .

BUT:

- *What the heck is happiness?*

Notes

Natural and social sciences
Possible errors

Natural sciences:

- instrumental error:
  - missing data,
  - distortion.
- interaction with environment,
- other possible errors.
- user error:
  - missing data,
  - distortion.

Social sciences:

Notes

Natural and social sciences
Possible errors

Natural sciences:

- instrumental error:
  - missing data,
  - distortion.
- interaction with environment,
- other possible errors.
- user error:
  - missing data,
  - distortion.

Social sciences:

- ALL ABOVE ☺
- plus the “objects” of the research:
  - might lie,
  - might deny answering,
  - might be unattainable,
  - might have no idea about the issue etc.

Notes

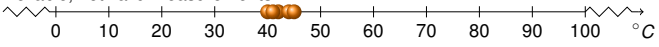
Natural and social sciences

Types of error

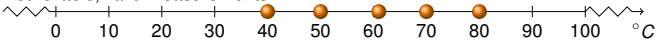
Measuring the temperature of a bowl of water kept at 60°C

Not reliable, not valid measurements:

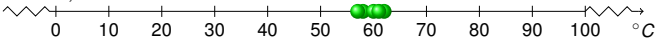
Reliable, not valid measurements:



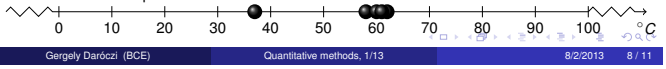
Not reliable, valid measurements:



Reliable, valid measurements:



What about this sample?



Notes

Possible goals of research

Brainstorming

Natural science:

- Will the world really end in 2010?
- How many worm can be found under the University?
- What is the most common molecule in the air of Budapest?

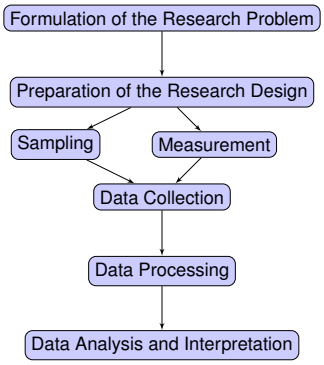
Social sciences:

- Will the world really end in 2010?
- How much does a diploma worth today?
- What is the most favorable color by women?

Notes

Stages of Social Research

A flowchart



Notes