Experiment validity - Internal
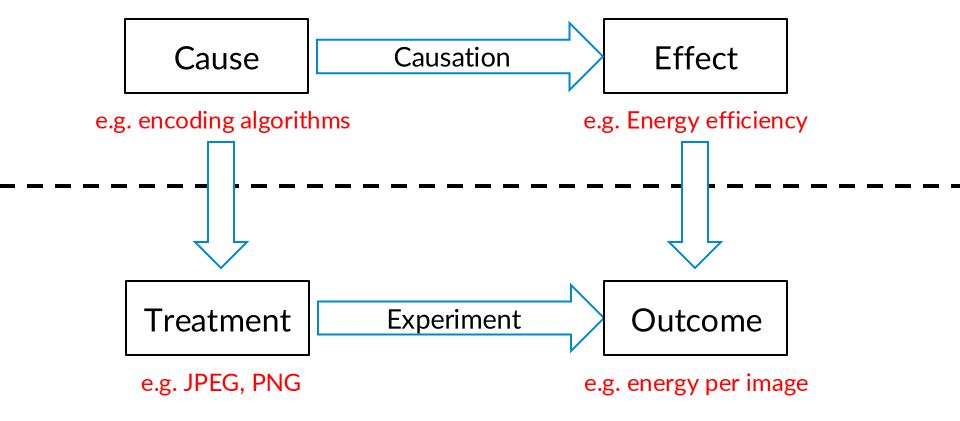
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Types of threat to validity

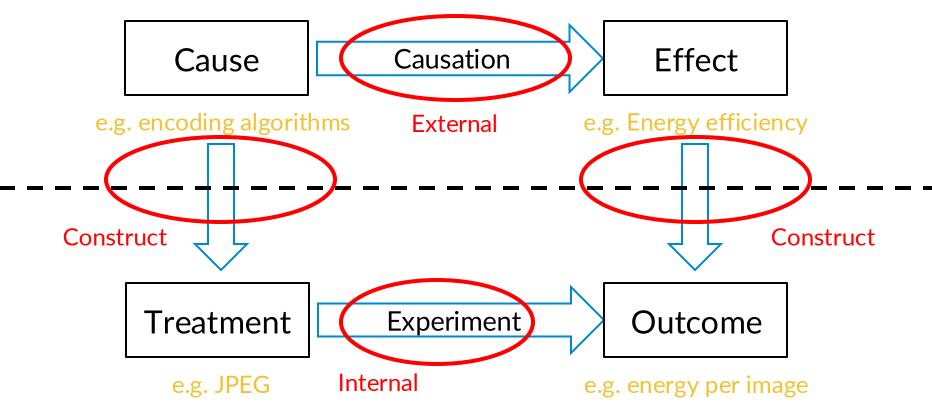Theory

Observation

Types of threat to validity

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Internal validity

Internal Validity: causality between treatment and outcome

- Strongly related to the **experiment design and operation**

  - Are my results caused by the treatment?

  - Is my experimental environment clean enough?

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Internal validity: types of threat

- ## Maturation
    - Subjects may react differently over time (eg, learning effect, tiresome, boredome)
- ## Selection
    - Some subjects may abandon the experiment
    - Even worse, some specific type of subjects may leave it
- ## Reliability of measures
    - If you repeat the measurement you should get similar results → same conclusions

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Internal validity: mitigation

✓ Analyze and identify confounding factors/noise

✓ Choose appropriate experiment design

✓ Keep environment under control

✓ Define representative usage scenarios (if needed)

✓ Ensure that your measures are reliable and correct

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Acknowledgements

Some contents of lecture extracted from:

- Giuseppe Procaccianti's lectures at VU

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