

# Research methods 02

## Generating researchable ideas

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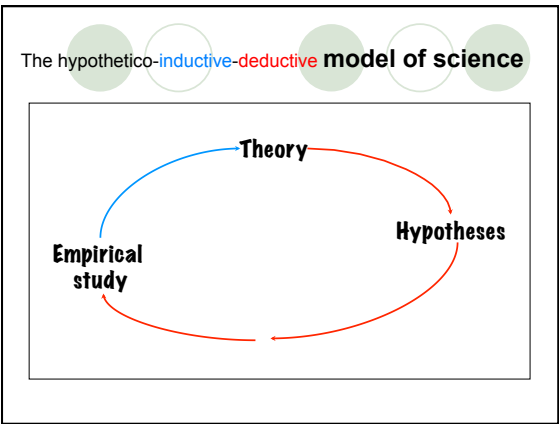
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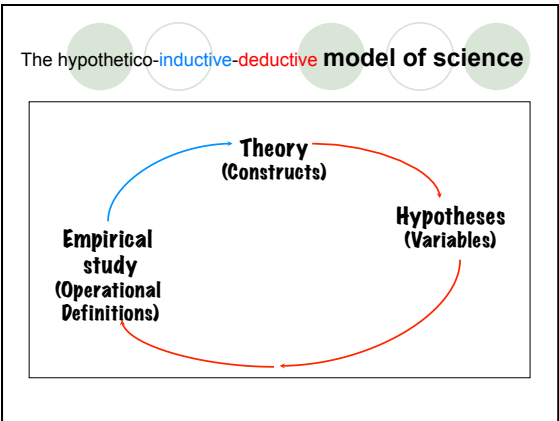
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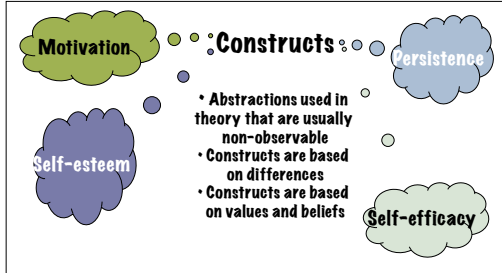
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## Theory : constructs



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## Theory : definition and attributes

- Theory is an **explanation** about a phenomenon
- Theory consists of a **set of propositions** about interrelationships among constructs
- Theory allows us to extract principles that lead to **testable hypotheses**
- The more studies support a theory, the more faith we can put in it
- **A theory can never be proven**
- Theory is not confirmed or disconfirmed but **modified** based on data

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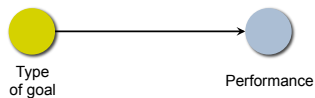
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## Theory : example

- **Theory:** Goal setting theory (Locke, 1968)
- **Studied phenomenon:** Motivation
- **Main constructs:** Goals and performance
- **Relationship:** Challenging and specific goals lead to higher performance than easy and general goals



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## Hypothesis : variable



### Variable

- concrete **partial** representation of constructs
- construct can be represented by many different variables
- can be assigned values and changes values across people or things
- *no variable can ever fully express a construct - it can only be representative of it!*

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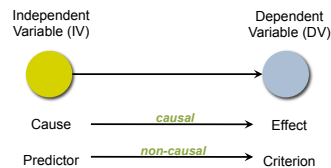
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## Hypothesis : definition

- A testable statement about the association between two or more variables based on theory
- Bridge between theory and research




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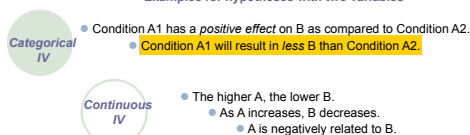
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## Hypothesis : wording

- A hypothesis is a simple statement about the relationship between **at least two variables**.
- A hypothesis is **directional**.
- The relationship can be causal or non-causal.
- The **IV is mentioned before the DV** (not: B is caused by A).
- A hypothesis is **NOT** a question.
- Use present or future tense, not past tense.

Examples for hypotheses with two variables




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## Moderating variable

- Answers the question: **WHEN or FOR WHOM** does the IV have an influence on the DV?
- Variable that interacts with the IV to have an effect on the DV
- **Partitions the IV into subgroups** that differentially impact the DV
- Can be **subject variables** (age, race, and socio-economic status)
- **Can be situational variables** (task conditions, environmental conditions)
- Often introduced when an unexpectedly weak relationship between IV and DV had been found.

before the research

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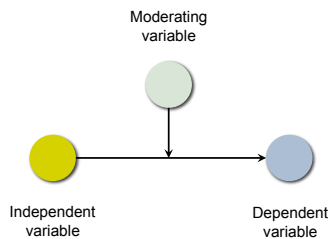
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## Moderating variable




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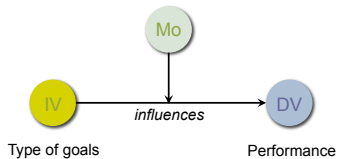
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## Moderating variable

**When...**  
 ...goals are accepted (Locke, 1972)  
 ...feedback is provided (Erez, 1972)  
 ...tasks **do not require new strategies** (Earley et al., 1988)




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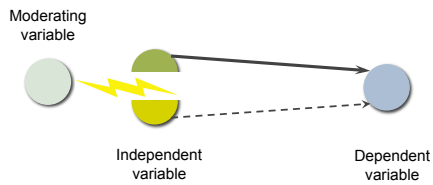
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## Moderating variable




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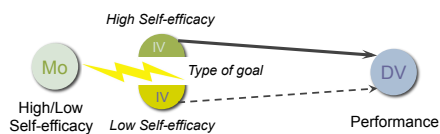
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## Moderating variable




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## Mediating variable

- Answers the question: **HOW or WHY** does the IV influence the DV?
- Variable that transmits the effect of the IV on the DV
- Often variable that describes internal psychological mechanism
- Often introduced when there is already a strong relationship between IV and DV

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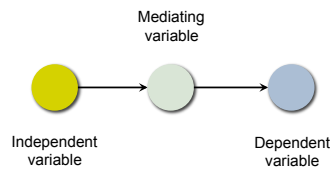
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## Mediating variable



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## Mediating variable



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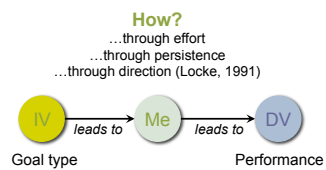
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## Mediating variable



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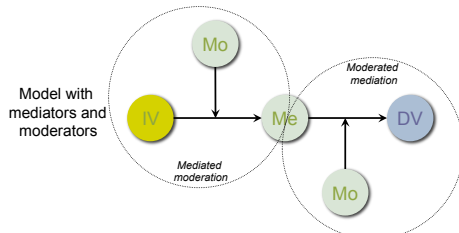
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## Mediation and moderation




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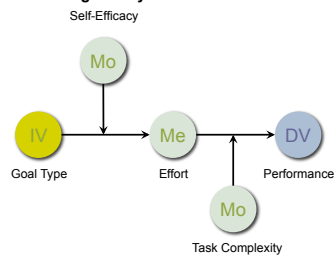
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## Mediation and moderation

Example: Goal Setting Theory




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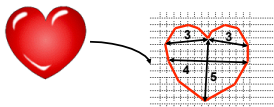
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## Operational definitions



- The operational definition of a construct is the set of procedures we use to measure or manipulate it.
- Make variables concrete so they have an empirical meaning
- Must be clear and unambiguous so it can be replicated by others
- Some constructs are harder to operationalize than others

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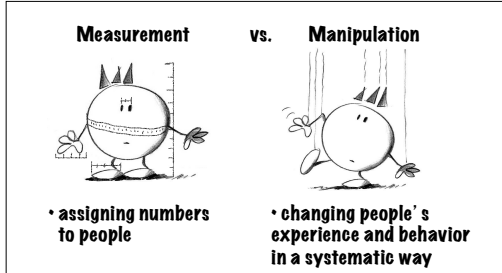
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## Operationalizing variables




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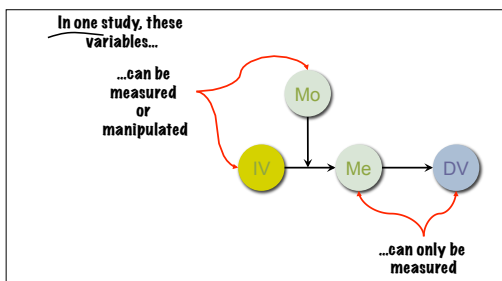
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## Operationalizing variables




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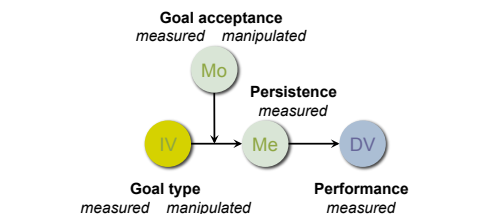
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## Operationalizing variables




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## Choosing a research topic

- Case study
- Paradoxical incident
- Analogy
- Serendipity
- Rule of thumb
- Conflicting results
- Exceptions to general findings

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## Choosing a research topic

All sections of an article can give you ideas for your research:

- Introduction
  - Qualify relationships with moderators
  - Clarify mediating processes
  - Focus on other phenomena that are related to the theory
- Methods/Results
  - Replicate study with different populations or operationalizations
  - Test a theory with different or multiple methods
  - Challenge prior results (*good luck!*)
- Discussion
  - The discussion section gives you valuable ideas for future research from the authors' perspective

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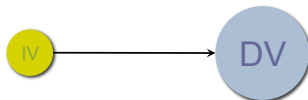
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## Researchable ideas

### Focus on DV

Why is the DV of interest?  
What are correlates of the DV?  
What influences the DV?  
What are consequences of DV?



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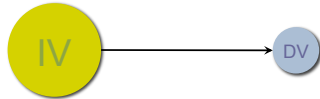
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## Researchable ideas

### Focus on IV

What are other outcomes of the IV?  
Have similar variables the same effect?  
What leads to the IV?



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## Researchable ideas

### Focus on Mediator

What might mediate IV and DV?  
How does the IV effect the DV?  
What are alternative explanations?



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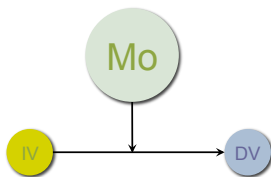
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## Researchable ideas

### Focus on Moderator

What conditions lead to a strong vs. weak  
relationship between the IV and the DV?  
For what type of people is the relationship more likely to hold for?



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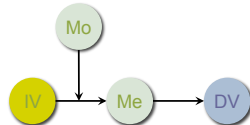
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## Researchable ideas

### Focus on everything

Has anyone tested the whole  
sequence of the model in one study?  
Are there a lot of findings about one theory  
that need to be summarized?



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## Researchable ideas : conclusion

- Going from a research topic to a researchable idea is a process of narrowing and focusing
- The study has to be interesting and innovative
- Clear constructs need to be defined so that detailed hypotheses can be specified
- Variables need to be measurable
- The study has to be feasible

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