

Introductions
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Readings for Today
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Summative lecture
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Preparation for Next Class
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Class 1 - Research I: Principles

Agenda

- Introductions (45 minutes)
 - Getting to know each other
 - Syllabus and materials overview
 - Typical class flow
- Break (5 minutes)
- Readings for today (50 minutes)
- Summative lecture and open discussion (20 minutes)
 - Key principles
 - Relative importance across different research classes

Introductions
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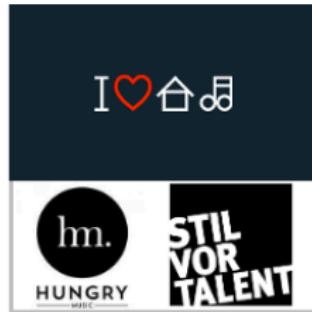
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Introductions

A little about me



A little about me



A little about me



A little about you

Please remember to fill out your introductory Qualtrics survey so that I can learn a bit about you and your goals for the class!

Today, let's level set on your familiarity with some key ideas:
[Pollev.com/drfox](https://pollev.com/drfox)

Syllabus and materials overview

- Syllabus
- Brightspace
- Dropbox

Typical class flow

- *Part I:* Conceptual grounding and agenda setting (10 minutes)
- *Part II:* Core paper discussion (45 minutes):
 - We will discuss the 2-3 papers that all students have been assigned to read in detail
 - These papers typically will provide a mix of conceptual background and how-to guides
- *Break*

Typical class flow

- *Part III: Activity period (40 minutes):*
 - (Weeks 2 – 7) Compare / contrast: One group tasked with reviewing two additional papers to explain their points of intersection, divergence, and ties to core papers
 - (Weeks 8 – 14) Replication: One group tasked with using data from one of my current or published papers to replicate analyses and show the class the process

Typical class flow

- *Part IV:* Summative lecture on concepts (15 minutes):
 - I will make a brief presentation to tie together and highlight key concepts
 - Elements missed in the general discussion will be given greater focus
- *Part V:* Open discussion (5 minutes)

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Readings for Today

Preamble

I have provided some discussion questions for us to consider in case we need to get the ball rolling.

We may or may not discuss those questions depending on the flow of the class.

In general, I would rather talk about your ideas and questions rather than these “canned” items.

Readings

- 1 Popper, K. R. (2002). *The Logic of Scientific Discovery*. Routledge. [Ch .1]
- 2 Mantere, S., & Ketokivi, M. 2013. Reasoning in Organization Science. *Academy of Management Review*, 38(1), 70-89.
- 3 Nosek, B. A. & Errington, T. M. 2020. What is replication? *PLOS Biology*: 1-8.
- 4 Rynes, S. L., & Bartunek, J. M. (2017). Evidence-Based Management: Foundations, Development, Controversies and Future. *Annual Review of Organizational Psychology and Organizational Behavior*, 4(1), 235-261.

Popper (2002)

The Logic of Scientific Discovery. [Ch .1]

According to the view that will be put forward here, the method of critically testing theories, and selecting them according to the results of tests, always proceeds on the following lines. From a new idea, put up tentatively, and not yet justified in any way — an anticipation, a hypothesis, a theoretical system, or what you will—conclusions are drawn by means of logical deduction [...]

[Then,] there is the testing of the theory by way of empirical applications of the conclusions which can be derived from it. [p. 9]

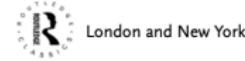
Popper (2002)

Discussion Questions

- In your view, what is the main point?
- Do this worldview currently inform your work? How might it?

Karl
Popper

The Logic of Scientific
Discovery



Mantere and Ketokivi (2013)

Reasoning in Organization Science. Academy of Management Review, 38(1), 70-89.

Labels aside, a closer look at research practice reveals that researchers across research traditions use all three forms of reasoning. It is hardly surprising to observe that we all make inferences to a case (use deduction), inferences to generalizations (use induction), and inferences to explanations (use abduction). Thus, using reasoning types as labels to describe entire research designs is misleading. Instead, differences between research approaches, whatever they may be, are found not in the types of reasoning used but, rather, in how the three reasoning types are used in conjunction with one another. (p. 76)

Mantere and Ketokivi (2013)

Discussion Questions

- What mode(s) of reasoning do you tend to rely on in your current work?
 - What concrete practices did you draw from this paper, if any?

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REASONING IN ORGANIZATION SCIENCE

SAGE JOURNALS

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Business School

Prescriptions regarding organizational effectiveness methodology are typically bounded on the one hand by a researcher's ability to measure particular constructs and on the other by use of extant theory regarding identification, induction, selection, and synthesis in organizational research. We seek to discuss this unresolvable tension with an alternative that incorporates a more reasonable view of the cognitive capacity of the researcher. To this end, we will construct a typology of descriptive, prescriptive, and normative criteria for the analysis and synthesis of organization and scientific research processes. This typology addresses both cognitive rationale and the diversity of research approaches in organization research. We invoke the general term for incorporating not only the cognitivities but also the negative elements from the formulation and evaluation of scientific reasoning and

The objective of scholarly reasoning is to create new knowledge in a scientific field. The creation of epistemically scientific knowledge more generally, has been approached through many angles, ranging from epistemological studies of science to the development of theoretical paradigms (Stcherbina, 1993) to construction of knowledge (Aarley, 1985) and synthesis of theories (Kabiratt & Maassen, 2002). In this paper, we will focus on how to extract literature in a methodological— or postulational— approach to scholarly reasoning, or as an account of scientific reasoning. The main purpose of this paper is to provide an understanding of how scholars search and locate relevant literature and how their reasoning and explanations is surprisingly limited (Liu et al., 2004), and yet perspectives toward research and theory development are often missing when they are discussing the problem in that perspective. The second purpose of this paper is to argue that the less accurate typically are the incorporate cognitive limitations of the researchers when they are searching for literature, the less successful they are likely to be in their research (see also Stcherbina, 1993).

We thank those anonymous ANR reviewers for their helpful, critical, and constructive evaluations of the manuscript. We are also grateful to former editor Alan Hirsch for his support and encouragement during our negotiations. We thank the anonymous editor at *Wiley*, whose thoughtful and helpful comments on our work on memory over the years have played a crucial role in the realization of this article.

Nosek and Errington (2020)

What is replication? PLOS Biology: 1-8.

To be a replication, 2 things must be true: outcomes consistent with a prior claim would increase confidence in the claim, and outcomes inconsistent with a prior claim would decrease confidence in the claim. The symmetry promotes replication as a mechanism for confronting prior claims with new evidence. Therefore, declaring that a study is a replication is a theoretical commitment. Replication provides the opportunity to test whether existing theories, hypotheses, or models are able to predict outcomes that have not yet been observed. (p. 2)

Nosek and Errington (2020)

Discussion Questions

- Do you agree with their definition of replication?
- How does this fit in with the replication crisis?

PLOS BIOLOGY

PERSPECTIVE What is replication?

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Abstract

Credibility of scientific claims is established with evidence for their replicability using new data. According to common understanding, replication is resulting in study's products and observing whether the same findings are replicated. This definition is intuitive, easy to apply, and useful, but the process of replication is not always this simple. In this Perspective, we argue that replication requires an arena about a claim from prior research. This definition includes empirical or operational characteristics of the claim, such as its scope, precision, and the number of variables and parameters. The purpose of replication is to advance theory by confirming existing understanding while testing for potential errors. We argue that replication is not just a process of repeating an experiment or testing a model. Successful replication provides evidence of generalizability across the conditions of the original study, but it also provides evidence of the robustness of the findings and the validity of the theory. The goal of replication is to increase the credibility of science. Defining replication as a combination of current theoretical expectations clarifies its importance, meaning, and generates risk in scientific progress.

INTRODUCTION

Credibility of scientific claims is established with evidence for their replicability using new data. According to common understanding, replication is resulting in study's products and observing whether the same findings are replicated. This definition is intuitive, easy to apply, and useful, but the process of replication is not always this simple. In this Perspective, we argue that replication requires an arena about a claim from prior research. This definition includes empirical or operational characteristics of the claim, such as its scope, precision, and the number of variables and parameters. The purpose of replication is to advance theory by confirming existing understanding while testing for potential errors. We argue that replication is not just a process of repeating an experiment or testing a model. Successful replication provides evidence of generalizability across the conditions of the original study, but it also provides evidence of the robustness of the findings and the validity of the theory. The goal of replication is to increase the credibility of science. Defining replication as a combination of current theoretical expectations clarifies its importance, meaning, and generates risk in scientific progress.

PLOS Biology | <https://doi.org/10.1371/journal.pbio.3000489> March 07, 2020

1/16

Rynes and Bartunek (2017)

Evidence-Based Management: Foundations, Development, Controversies and Future.

Management academics have long noted a large gap between academic research and managerial practice. [...] Some have viewed the causes of the gap as lying primarily with academic researchers, who are characterized (perhaps caricatured) as having become overspecialized, self-referential, obsessed with theory, excessively mathematical, jargonladen, unconcerned about practical problems, and dismissive of practitioners [...] Others have focused on practitioners, who are sometimes characterized or caricatured as research phobic, anti-intellectual, susceptible to unproven fads and fashions... (p. 236)

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Summative lecture

Preamble

What follows is my personal, idiosyncratic synthesis of the pieces that we have read to date. To be clear, many interpretations are possible due to these articles' collective:

- richness
- overlap
- distinctive features

Preamble

Furthermore, there are multiple plausible criteria to judge quality research and a lack of universal consensus given the multiplicity of aims and epistemological orientations.

This is not to say anything goes; rather, I am trying to highlight the limits of my knowledge and that my unique (quantitative, positivist, deductive) lens necessarily abstracts away features from these complex discussions.¹

¹My stance is probably better captured with the idea of post-positivism, but I don't have a great reference to share here - but here is an overview:
<https://en.wikipedia.org/wiki/Postpositivism>.

Some key principles of research design

- Falsifiability
- Defensibility
- Applicability
- Replicability

Falsifiability

- Falsifiability provides a basis for to use abductive reasoning to augment pure deductive reasoning.
 - The latter is true a priori if the premises are valid.
 - Pure deduction can transform our understanding of the system (think theorems in math).
 - But deduction cannot uncover truth beyond the system's universe of premises.
- We must use other means (such as abduction) to draw conclusions about what our data is telling us (i.e., concluding a theory is supported or not) to determine whether our deductive premises are valid by comparing our observation to our expectation (i.e., a proof by contradiction or falsification)

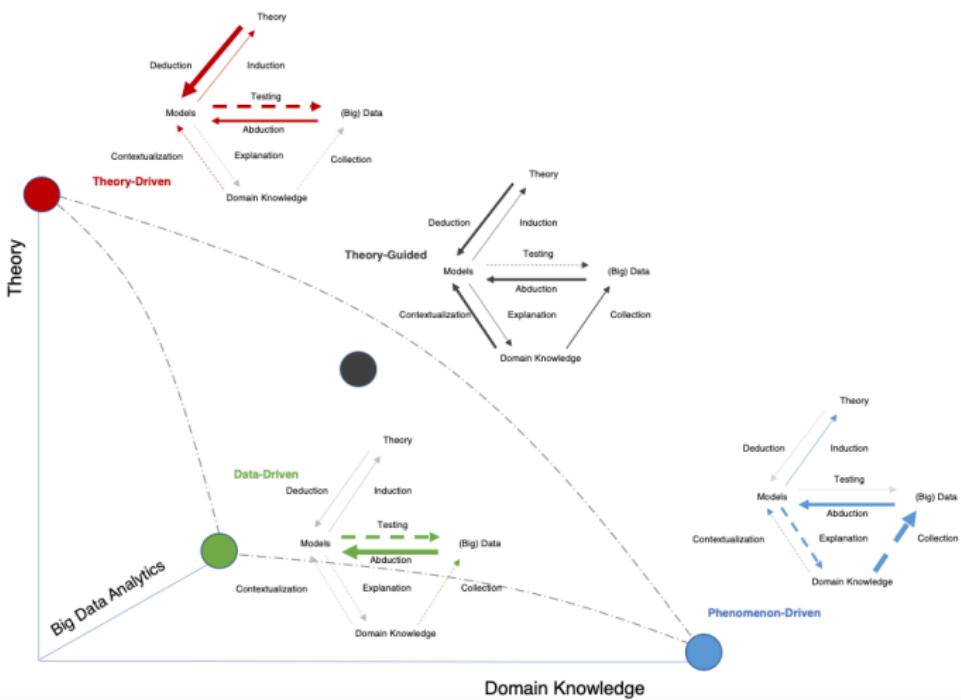
Falsifiability

My proposal is based upon an asymmetry between verifiability and falsifiability; an asymmetry which results from the logical form of universal statements. For these are never derivable from singular statements, but can be contradicted by singular statements. - Popper (2002, 19)

Defensibility

- If the logic of our arguments are defensible and the evidentiary basis is sound, we are better able to act upon the conclusions with confidence.
- Like Mantere and Ketokivi (2013), my coauthor Zeki and I argue that the relative importance of each reasoning mode varies based on the research design employed and intended contribution.

Defensibility



Defensibility

Toulmin diagrams provide one way to map out any argument, regardless of the method of inference:

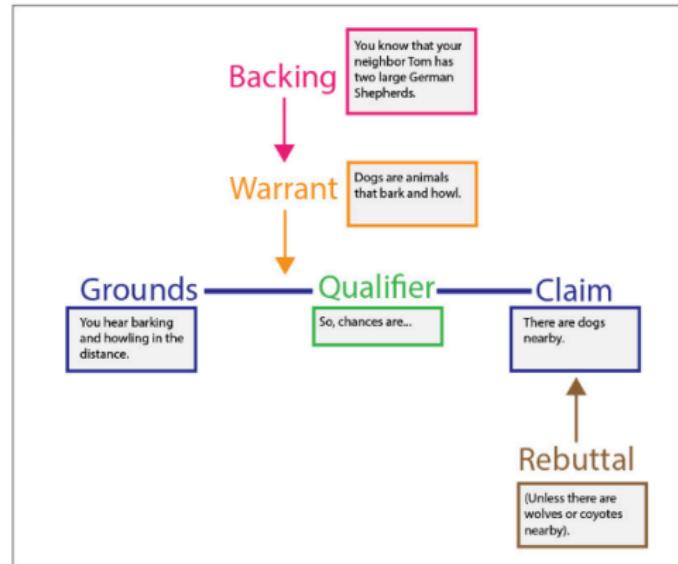


Figure 3: An example Toulmin diagram

Applicability

But our arguments and conclusions, even if correct, are not that helpful if they aren't applicable to real-world problems.

There are two corollaries to this observation:

- We should pick problems that actually matter, not just intellectual curiosities.
- We should not be hamstrung by our ability to tackle important problems.

Applicability

I was recently at a brown-bag seminar where a pair of management colleagues were seeking advice about a preliminary research idea. It took just a few minutes for us all to agree that their research question was fascinating. It addressed an extremely interesting issue that both academics and practicing managers would like to learn more about. The only problem: the presenters had no theory. So, we spent the entire session going through our collective mental catalogues of theories that might be invoked so that the project could proceed and have some prospect of publication. People were mentioning theories I'd never heard of. We became frenzied, nearly desperate: "Good god, there must be a theory out there that we can latch onto." - Hambrick (2007)

Replicability

- Finally, the structure of our empirical base presumes that the research was performed in good order and that the findings are replicable within their domain of applicability.
- Said differently, if we are to make deductive inferences based on extant literature (i.e., to test and build upon that theory), we want to feel comfortable that is well-founded and that we can make inferences about specific cases from the general rules encoded by existing theory.

Replicability

[A]n accumulation of evidence that points to empirical regularities provides us with a much broader and more generalized understanding of the world. Such empirical regularities are known as 'stylized facts'. - Helfat (2007)

The relative importance of each principle

We can consider four basic “classes” of research in management:

- basic disciplinary research (primary studies in AER, AJS)
- applied research conducted in a management context (primary studies in AMJ)
- data-driven decision making derived from primary studies (systematic reviews in IJMR, JOM)
- practitioner-focused outlets (articles in HBR, CMR, popular press)

Where might, for example, applicability be more highly valued?
Falsifiability?

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Next class

Research II: Positions

- 1 Huff, A. S. (1999). Writing for Scholarly Publication. SAGE. [Chs. 1, 3]
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