

The small book of big research

The what and how of doing scientific research

Version alpha 0.1



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Introduction

While traditional research guides often prioritize “what” (the (formal) sections of a thesis or dissertation), this book shifts the focus to “how”: the dynamic processes of conceptualizing, reasoning, synthesizing, and documenting that shape valuable research. Furthermore, this is not to suggest that documentation lacks significance. On the contrary, it plays an essential role in clarifying how to obtain, organize, and communicate the information necessary for each chapter of the research.

In this book, the thesis or article is framed as a roadmap. At each step of this roadmap, we not only explain what needs to be done, but also how to execute each task. Furthermore, we provide guidance on how to critically assess the quality of the output; whether it is inadequate, sufficient, or excellent. Research is a journey; therefore a roadmap would be handy.

This book is designed for a diverse academic audience, including undergraduate and graduate students, early-career researchers,

and educators, both senior faculty and junior instructors. For students, it serves as a practical guide to navigating the often opaque processes of research, moving beyond the prescriptive structure of a thesis or dissertation to explore the critical how behind each phase: from conceptualizing a research question to documenting findings with rigour and transparency. Beginners in research will find clarity in the step-by-step breakdown of methodological choices, common pitfalls, and strategies for evaluating the quality of their work, empowering them to approach their projects with confidence and critical awareness.

For early-career researchers, the book offers a reflective framework to refine their approach to research design, analysis, and communication. It emphasizes the importance of iterative thinking, consequences, and the ethical dimensions of knowledge production, which are frequently underserved in traditional research manuals. Senior and junior educators, meanwhile, will discover pedagogical tools (such as case studies, discussion questions, and evaluative checklists) to integrate in their teaching. These resources are tailored to foster more in-depth engagement with research processes in the classroom, encouraging students to think like practitioners rather than mere consumers of academic conventions.

By bridging the gap between theoretical ideals and practical execution, this book equips all readers with the skills to assess the strengths and limitations of their work. Meanwhile, adapt to disciplinary expectations and communicate their findings effectively to both academic and non-academic audiences. Whether you are a student embarking on your first thesis or a seasoned scholar pushing the boundaries of your field, this chapter will equip you to think big, start small and smart, and lay the foundation for research that matters.

The Four Horsemen of Research: Conceptualizing, Reasoning, Synthesizing, and Documenting

At the heart of rigorous inquiry lie four indispensable processes we call the four horsemen of research: conceptualizing, reasoning, synthesizing, and documenting. These processes form the backbone of how knowledge is constructed, validated, and communicated, transcending disciplinary boundaries and methodological traditions.

Conceptualizing sets the stage by translating abstract ideas into researchable questions, defining variables, and establishing theoretical frameworks that guide inquiry. Reasoning then structures the logical flow of argumentation, ensuring that hypotheses are tested with intellectual rigour and that conclusions are drawn from evidence rather than assumption. Synthesizing bridges the gap between isolated findings and broader understanding, weaving together data, theory, and context to produce insights greater than the sum of their parts. Finally, documenting safeguards the integrity of the research enterprise, providing a transparent record of methods, decisions, and limitations that enables scrutiny, replication, and cumulative progress.

Together, these four horsemen govern the lifecycle of research, from the initial spark of curiosity to the dissemination of findings. Neglecting any one of them risks producing work that is either irrelevant, flawed, fragmented, or irreproducible, undermining the very purpose of scholarly inquiry. Mastery of these processes empowers researchers to navigate complexity, anticipate challenges, and contribute meaningfully to both academic discourse and real-world problem-solving. In this book, we treat them not as sequential steps but as interdependent pillars, each reinforcing the others to elevate the quality, impact, and credibility of research.

Conceptualizing is the foundational phase of research wherein a vague idea or societal concern is transformed into a clearly defined research question or hypothesis. This process involves identifying key variables, operationalizing abstract concepts, and selecting an appropriate theoretical or analytical framework. Effective conceptualization requires a profound understanding of existing literature, as well as the ability to recognize gaps or contradictions that warrant further investigation. Researchers must also anticipate the broader implications of their work, ensuring that their questions are not only academically rigorous but also relevant to real-world challenges. For example, defining a term like “modal income” necessitates clarity on its measurement, contextual relevance, and potential biases. Without robust conceptualization, even the most sophisticated methods may yield misleading or superficial results, as the research may fail to address the core issues it seeks to explore.

Reasoning encompasses the logical and analytical processes through which researchers construct arguments, test hypotheses, and draw conclusions. It involves both deductive logic—applying general principles to specific cases (and inductive reasoning) deriving broader insights from observed data. Critical to this phase is the ability to identify and mitigate cognitive biases, fallacies, and assumptions that could undermine the validity of findings. Researchers must also engage in abductive reasoning, generating plausible explanations for unexpected patterns in their data. For instance, when analysing the relationship between economic inequality and political behaviour, a researcher must carefully weigh alternative interpretations and consider the influence of confounding variables. Strong reasoning ensures that conclusions are not only internally consistent but also defensible in the face of scrutiny, whether from peers, policymakers, or the public.

Synthesizing is the process of integrating diverse sources of information (such as empirical data, theoretical perspectives, and contextual knowledge) to produce a coherent and insightful narrative. This requires balancing quantitative and qualitative evidence, reconciling conflicting findings, and situating one's work within the broader scholarly conversation. Effective synthesis often involves techniques such as meta-analysis, systematic reviews, or interdisciplinary approaches, which allow researchers to identify overarching themes or gaps in existing knowledge. A well-executed synthesis does more than summarize; it generates new insights by connecting disparate ideas, challenging conventional wisdom, or proposing innovative frameworks. For example, synthesizing research on wage policies might reveal how historical, economic, and sociopolitical factors interact to shape labour market outcomes, offering a more nuanced understanding than any single study could provide.

Documentation is the systematic observing, recording and communication of the research process, ensuring transparency, reproducibility, and accountability. This includes detailing methodological choices, data sources, analytical procedures, and ethical considerations, as well as archiving raw data and intermediate findings. Rigorous documentation enables other researchers to replicate or build upon the work, while also allowing stakeholders, such as policymakers or practitioners, to assess its credibility and applicability. In an era of open science, documentation extends beyond traditional academic writing to include data management plans, preregistered protocols, and interactive visualizations. Poor documentation hinders the reproducibility of research and erodes trust in scientific findings, as seen in cases where incomplete or selective reporting has led to flawed policy decisions.

From Foundation to Ambition: Launching the Research Journey

Having established the four horsemen of research—conceptualizing, reasoning, synthesizing, and documenting—as the bedrock of rigorous inquiry, we now turn to the spark that ignites the entire process: the Big Hairy Audacious Research Idea (BHARI). This is where ambition meets our methodology, and where the abstract potential of curiosity is harnessed into a concrete, transformative question. A BHARI is more than a mere topic; it is a bold, high-impact proposition that challenges conventional wisdom (Nobel for sure), addresses pressing societal needs, or opens entirely new avenues of exploration. Such ideas demand not only intellectual courage but also a disciplined approach to refining their scope, feasibility, and significance.

The (ultimate) goal

When we search for goals in research, we are fundamentally engaging in a dual inquiry that combines purpose-driven reflection with the pursuit of truth. The questions “What should I be trying to do?” and “What are my purposes in doing this?” compel us to clarify the intentions, objectives, and societal or intellectual value of our

work, ensuring that our efforts are not only methodologically sound but also meaningfully directed. Simultaneously, the commitment to seeking the truth about a subject grounds this purpose in evidence-based exploration, where hypotheses are tested, assumptions are scrutinized, and conclusions are drawn from systematic analysis. This synthesis of teleological reasoning (defining what we aim to achieve) and epistemological rigour (uncovering what is true) forms the foundation of scientific inquiry. It ensures that research is not merely an academic exercise but a deliberate, truth-seeking endeavour that advances understanding, addresses real-world challenges, and contributes to the cumulative body of knowledge. In this way, the search for goals becomes both a pragmatic and a philosophical pursuit, aligning our actions with the broader mission of discovery and progress.

Furthermore,

In the next chapter, “A Big Hairy Audacious Research Idea,” we dissect how to identify, articulate, and refine these catalytic questions; whether they emerge from gaps in the literature, real-world crises, or interdisciplinary collisions. We will explore how to balance audacity with pragmatism, ensuring that ambition is tempered by methodological rigour and ethical consideration. This chapter serves as the first milestone in your research roadmap, demonstrating how the four horsemen converge to transform a daring idea into a viable, impactful project.

By the end, readers will understand not only how to pursue (bold or not so bold) research, but also why such ideas are essential for advancing knowledge and driving meaningful change. The transition from inspiration to execution is where many researchers falter, either by diluting their vision or by failing to ground it in actionable steps. Here, we provide the tools to navigate this critical juncture, offering frameworks to assess the

originality, feasibility, and potential impact of a BHARI. Through examples and reasoning, we illustrate how the four horsemen guide you in turning ambition into achievement. Whether you are a student embarking on your first thesis or a seasoned scholar pushing the boundaries of your field, this chapter will equip you to think big, start smart, and lay the foundation for research that matters.

To quote Great Scott! from YouTube:

Let's get started!



BEACON
of
Lost
Hope

END
of
REASON

FIELDS
of
Reason

(OR)

(AND)

Black Hill Tops of Dispare

SWAMP
of
CONCEPTS

BAMBOOZER
FIELDS

MAGIC TRAP

PITFALLS

PEAKS
of
Synthesis

DARK FOREST
of
the
BHARI

GREAT HALL
of
Documenting

DONE

cloudy
forest

BHARI

From Foundation to Ambition: Launching the Research Journey

Having established the four horsemen of research (conceptualizing, reasoning, synthesizing, and documenting in the introduction) as the bedrock of methodological and critical inquiry, we now turn to the spark that ignites the entire process: the Big Hairy Audacious Research Idea (BHARI). This is where ambition meets methodology, and where the abstract potential of curiosity is harnessed into a concrete, transformative question. A BHARI is more than a mere topic; it is a bold, high-impact proposition that challenges conventional wisdom, addresses pressing societal needs, or opens entirely new avenues of exploration. Such ideas demand not only intellectual courage but also a disciplined approach to refining their scope, feasibility, and significance. In this chapter, “A Big Hairy Audacious Research Idea” we dissect how to identify, articulate, and refine these catalytic questions; whether they emerge from gaps in the literature, real-world crises, or interdisciplinary collisions. We will explore how to balance audacity with pragmatism, ensuring that ambition is tempered by methodological rigour and ethical consideration. This chapter serves as the first milestone in your research roadmap, demonstrating how the four horsemen converge to transform a daring idea into a viable, impactful project. By the end, readers will understand what, why, and especially how to do

research, but also why such ideas are essential for advancing knowledge and driving change.

While Big Hairy Audacious Research Ideas (BHARIs) often conjure images of groundbreaking, large-scale inquiries, they need not be intimidating in scope for early-career researchers or students. A BHARI can equally manifest as a focused, feasible question that challenges conventional thinking within a limited context; such as reexamining a local policy’s unintended consequences, testing a novel method in a setting, or exploring an overlooked variable in existing data. The key lies not in the scale of the question but in its potential to inspire rigorous inquiry, interdisciplinary connections, or fresh perspectives.

For beginners, even a “small” BHARI, for example investigating why a specific teaching strategy succeeds in one community but not another, can serve as a catalyst for developing critical research skills, provided it is rooted in curiosity, methodological care, and a clear theoretical framework. In this way, ambition is measured not by breadth but by the depth of engagement and the willingness to push boundaries, however modest they may initially appear.

Why? The Pursuit of Truth as the Core Mission of Science

The fundamental purpose of science is often framed as the systematic pursuit of truth. A relentless endeavour to uncover the underlying mechanisms of the natural and social worlds through evidence-based inquiry. This mission is not merely about accumulating facts, but about constructing robust, falsifiable explanations that withstand scrutiny and replication. Truth, in this context, is not an absolute or static entity but a dynamic approximation (or shared perspective), refined through iterative testing, peer review, and the cumulative efforts of the scientific community.

The philosophy of science has long grappled with the nature of truth, knowledge, and the methods by which we attain them, giving rise to a spectrum of influential perspectives. Immanuel Kant argued that knowledge is shaped by a priori categories of the mind, bridging empiricism and rationalism, while Francis Bacon championed inductive reasoning and systematic experimentation as the path to objective truth. Thomas Aquinas integrated Aristotelian logic with theological inquiry, emphasizing the harmony between faith and reason, whereas David Hume challenged the certainty of causal inferences, asserting that knowledge is grounded in observation and habit rather than metaphysical necessity. In the 20th century, Karl Popper redefined scientific

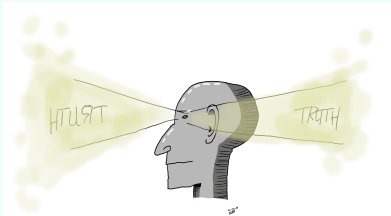
progress through falsificationism, positing that theories gain credibility not by verification but by surviving rigorous attempts to disprove them. These foundational debates underscore the plurality of approaches to understanding scientific truth.

Contemporary discussions often categorize these approaches into three broad paradigms: modernism, which aligns with positivist traditions, seeking universal, objective truths through empirical validation; postmodernism, which rejects grand narratives and frames truth as socially constructed, contingent, and shaped by power dynamics, and post-postmodernism, which transcends relativism by acknowledging truth as emergent, pragmatic, and co-created through material-discursive practices. Together, these perspectives illustrate that there is no singular "scientific method" but rather multiple ways of doing science, each offering distinct insights into how truth is pursued, contested, and constructed. Recognizing this diversity empowers researchers to adopt methodologies that align with their epistemological commitments; whether aiming for objectivity, deconstructing biases, or embracing truth as a dynamic, collaborative endeavour. With three types of "the truth", let's dive into them.

There can only be

1

The positivist conception of universal truth is grounded in the principles of objectivity and empirical foundations, asserting that verifiable knowledge arises from systematic observation, measurement, and the correspondence between theoretical propositions and an observer-independent reality. Championed by thinkers such as Auguste Comte and later refined by logical positivists like Rudolf Carnap and A.J. Ayer, it posits that truth is universal, objective, and accessible through empirical observation and rational analysis. Rooted in the Enlightenment ideal of progress, positivism asserts that scientific knowledge is cumulative, and that truth claims must be verifiable or falsifiable through systematic experimentation and measurement. For positivists, truth exists independently of human perception; it is an external reality waiting to be discovered through rigorous methodology. This perspective dominates the natural sciences, where laws of physics or chemistry are considered timeless and universally applicable. However, critics argue that positivism's reliance on neutral observation ignores the role of theoretical frameworks, cultural biases, and historical contexts in shaping what counts as "evidence." Despite these critiques, positivism remains influential in fields where quantification and reproducibility are paramount, reinforcing the idea that truth is a correspondence between propositions and an objective reality.



Postmodern epistemology rejects universalist claims to truth, instead framing it as a relativistic and contingent construct shaped by linguistic, cultural, and institutional power structures. Furthermore, while deconstructionist critiques expose the inherent instability of objective foundations, revealing truth as an effect of interpretive practices and discursive regimes. Postmodernism, spearheaded by philosophers such as Jean-François Lyotard, Michel Foucault, and Jacques Derrida, rejects the notion of a single, universal truth. Instead, it (post-modernism) frames truth as socially constructed, contingent, and inseparable from power structures. Lyotard's The Postmodern Condition (from 1979) famously declared the end of “grand narratives,” arguing that truth is fragmented into localized, context-dependent discourses shaped by language, ideology, and institutional authority. Foucault further demonstrated how “truth” is produced through regimes of power, where dominant groups define what is accepted as knowledge (e.g., in medicine, law, or science). Derrida's deconstructionism exposed the instability of language itself, showing how meaning (and thus truth) is deferred and always open to reinterpretation. In this view, truth is not discovered but negotiated, reflecting the interests of those who control discourse. While postmodernism has been pivotal in exposing the political dimensions of knowledge, its radical relativism has also been criticized for undermining the possibility of shared standards for evaluating claims. Therefore, leaving room for scepticism about whether any truth can be objectively known.

Post-postmodern conceptions of truth emphasize its pragmatic construction through material-discursive practices, framing it as an emergent property of dynamic interactions between agents, institutions, and the physical world, rather than a static or purely subjective artifact. Emerging as a response to postmodern scepticism, post-postmodernist (or “new realist”) thinkers like Quentin Meillassoux, Bruno Latour, and Karen Barad propose that truth is neither purely objective nor entirely subjective but actively constructed through material and discursive practices. Meillassoux’s speculative realism argues for a reality that exists independently of human thought, while Latour’s actor-network theory (ANT) emphasizes how truth emerges from networks of human and non-human actors (e.g., scientific instruments, institutions, or algorithms). Barad’s agential realism goes further, suggesting that truth is co-created through the intra-actions of observers and phenomena, blurring the line between subject and object. Unlike postmodernism, which often treats truth as a purely linguistic or social artifact, post-postmodernism acknowledges the material and performative dimensions of knowledge production. Here, truth is not a fixed discovery or a mere construct but a dynamic, emergent property of complex systems; whether in quantum physics, climate science, or social policy. This perspective allows for both critical reflexivity and practical engagement, recognizing that while truth may be contingent, it is not arbitrary; it is shaped by collaborative, iterative processes that bridge theory and practice.

The role of Big Hairy Audacious Research Ideas (BHARIs) is to serve as a starting point for our truth-seeking mission. An idea that becomes a hypothesis. Furthermore, one that may demand bold questions, (interdisciplinary) collaboration, and a willingness to risk failure in the service of insights. For example, the Human Genome Project or the quest for a unified theory of physics began as BHARIs that redefined the scope of scientific inquiry. These ideas force researchers to move beyond conventional wisdom, often exposing hidden biases or revealing new dimensions of complexity. A BHARI on the other hand, can be big for you, but "small" for science (as in breadth): It is the depth that counts. By doing so, BHARIs do not just contribute our accumulation of knowledge. Furthermore, they reshape the very questions we ask, the methods we employ, and the standards by which we evaluate truth. They compel us (future) researchers to engage with uncertainty, to embrace ambiguity, and to recognize that the most profound truths frequently emerge at the edges of current understanding because value is created by friction.

The BHARI is a start to the real work of research: to bridge the gap between ambition and evidence,

turning abstract curiosity into actionable research agendas. However, this process is not without challenges. The audacity of a BHARI must be tempered by methodological rigour and epistemological humility: a recognition that even the most revolutionary ideas must be grounded in testable propositions and transparent documentation. The history of science is replete with examples of BHARIs that initially seemed implausible (e.g., continental drift, quantum mechanics) but ultimately reshaped entire disciplines. Yet, not all BHARIs succeed; some falter due to flawed assumptions, insufficient evidence, or resistance from established paradigms. The pursuit of truth through BHARIs thus requires a delicate balance between the courage to imagine what others deem impossible, paired with the discipline to subject those imaginings to rigorous empirical scrutiny. In this way, BHARIs embody the dual nature of scientific progress because both visionary, pragmatic, and driven by the belief that the most meaningful truths are often those that demand the greatest intellectual and methodological risks.

**But how to find,
create, image and
evaluate
a BHARI?**

While Big Hairy Audacious Research Ideas (BHARIs) are celebrated in this book for their potential to drive transformative change, not all such ideas are inherently valuable or viable. The process of identifying a BHARI begins with recognizing gaps in existing knowledge, unresolved societal challenges, or interdisciplinary collisions that are waiting to be explored. However, the mere audacity of an idea does not guarantee its scientific merit or practical impact. A robust BHARI must balance intellectual ambition with methodological feasibility, ensuring that it is not only innovative but also based in testable hypotheses, ethical considerations, and available resources. History shows that some BHARIs (overly speculative theories) have faltered due to flawed assumptions, insufficient evidence, or resistance from established paradigms. Thus, researchers must critically assess the originality, feasibility, and potential consequences of a BHARI, distinguishing between ideas that push boundaries productively and those that risk being unrealistic, unethical, or irreproducible. This evaluative process requires rigorous peer review, pilot studies, and iterative refinement to ensure that ambition is matched by empirical rigour and societal relevance. Without such scrutiny, even the most daring ideas may lead to dead ends rather than breakthroughs.

Conceptually, at the core of every BHARI lies a thesis that seeks either to understand a phenomenon, solve a persistent problem, or challenge assumptions. Such a thesis posits that conventional frameworks may be inadequate to address the complexity of the research question at hand, and that only through interdisciplinary collaboration, methodological innovation, and a willingness to embrace uncertainty can meaningful progress be achieved.

For example, a BHARI in climate science might assert that current mitigation strategies are insufficient without socio-technological integration, while a BHARI in social policy could argue that traditional economic indicators fail to capture the true drivers of human well-being. This central thesis serves as a hypothesis. In this way, the thesis becomes a vehicle for intellectual and societal progress, pushing the boundaries of what is considered possible in research and practice.

To move from inspiration to investigation, a Big Hairy Audacious Research Idea (BHARI) must be systematically refined into a testable hypothesis; a specific, falsifiable statement that defines the scope of inquiry and establishes the criteria for evaluating its validity. This transformation requires breaking down the BHARI's broad ambition into (research) questions, identifying key variables, and operationalizing abstract concepts so they can be empirically examined. For students, this step is critical: it bridges the gap between visionary thinking and rigorous research, ensuring that even the most groundbreaking ideas can be explored through structured inquiry, data collection, and analysis. So let us start with inspiration.

The journey towards a truth often begins with inspiration drawn from the researcher's context. Whether it's a spark of curiosity, a gap in existing knowledge, or an unexpected connection between ideas. For many students and researchers, this inspiration emerges from diverse and sometimes serendipitous sources: a random search on a search engine or Wikipedia that

reveals an unexplored angle; unanswered questions lingering in academic literature or public debates; or the nagging sense that an answer only leads to more questions. All these situations signal fertile ground for deeper inquiry. Others may start with a (seemingly) advantage: An "oven-ready" subject or question provided by a mentor, professor, or a grant call. Regardless of the source, the key is the recognition that inspiration is not passive. Yes, it requires active engagement (reading or, for some, listening) with all the material you can get your hands on: by questioning assumptions, identifying contradictions, and connecting disparate ideas your BHARI moves towards a hypothesis. This phase is about cultivating curiosity, being critical and learning to see potential where others might find dead ends, and to boldly go where no one (or some) has gone before. The challenge and the opportunity lies in transforming these initial sparks into a focused, meaningful research questions.

If you find yourself at a loss for inspiration, there are several structured or random approaches to help you identify a compelling research focus:

1

Begin by consulting the index or table of contents of a course textbook or introductory monograph in your field; these often highlight foundational concepts, unresolved debates, or emerging themes that can spark curiosity. When really lost for inspiration, randomly (or purposefully) highlight two or more distinct entries (such as concepts or theories) and critically assess whether unexplored relationships or contradictions exist between the two selected. For example, linking "modal income" with "urban migration patterns" might reveal gaps in how economic indicators interact with demographic shifts.

Reflect on topics from your coursework that left you puzzled or intrigued; these moments of confusion often signal unanswered questions worth exploring. Furthermore, these questions are a great place to start.

2

3

Revisit previous research, whether your own or others', and examine the "further research" sections of scientific articles, where authors frequently outline unresolved issues or new directions. "Further research" recommendations are frequently embedded in the discussion sections of articles. Their authors explicitly identify unresolved questions, methodological limitations, or emergent themes that warrant more profound investigation. For instance, by you! These suggestions often serve as strategic signposts for future inquiry, highlighting gaps in current knowledge or areas where existing theories require refinement. By scouting these sections, you can uncover underexplored avenues that align with broader scholarly debates or practical challenges. Such recommendations not only provide a ready-made foundation for developing (new) research questions but also ensure continuity in the cumulative progression of scientific understanding.

4

Additionally, consulting your professor or mentor can provide valuable guidance, as they may suggest overlooked gaps in the literature or connect you with ongoing debates in the field.

These strategies help you pinpoint a research question and ensure that your inquiry is grounded in existing scholarship while offering room for original contribution. By systematically exploring these avenues, you can transform uncertainty into a focused and meaningful research endeavour.

From BHARI to (base-)hypothesis.

Concepts are the main ingredient of a hypothesis: At the heart of any rigorous hypothesis lie clearly defined concepts, which serve as the primary ingredients for constructing testable and meaningful research statements. Concepts provide the theoretical scaffolding that transforms abstract ideas into measurable variables, allowing researchers to articulate relationships, predict outcomes, and design empirical investigations. Without precise conceptualisation, hypotheses risk being vague, untestable or unfalsifiable, or disconnected from existing "state of the art" in science. For example, a hypothesis examining the relationship between "social capital" and "community resilience" depends on how these terms are operationalised. Operationalised means, for example, through document analysis, interviews, surveys, or case studies. The clarity, specificity, and theoretical foundation of these concepts determine the hypothesis's validity and its potential to yield insights. Thus, the process of hypothesis formulation begins with conceptual refinement, ensuring that each term is not only well-defined but also aligned with the broader intellectual and methodological framework of the study. In this way, concepts act as the bridge between theory and evidence, shaping the trajectory of scientific inquiry. The process of

finding and refining concepts is discussed in the next chapter.

Transforming a Big Hairy Audacious Research Idea (BHARI) into a testable hypothesis requires a systematic and iterative process of conceptual exploration and refinement. Begin by zooming out to map the broad intellectual terrain surrounding your BHARI, posing foundational questions such as "What are the core concepts at play?", "What disciplines or theories intersect here?", and "What assumptions underpin this idea?" As you identify each concept, delve deeper into its definitions, boundaries, and relationships with other variables, progressively narrowing the scope. This method resembles an outwards spiral: starting small, expanding with an exploratory lens to capture the full complexity of the BHARI, then incrementally focusing on specific concepts that emerge as critical. For example, if your BHARI concerns the impact of digitalization on social inequality, you might first explore concepts like access, literacy, and power structures. Through this convergent process, abstract ideas become operationalized into research questions, ultimately crystallizing into a falsifiable hypothesis. This approach ensures that the hypothesis retains the transformative potential of the BHARI while grounding it in a structured, evidence-based framework.

How to know when a concept is critical?

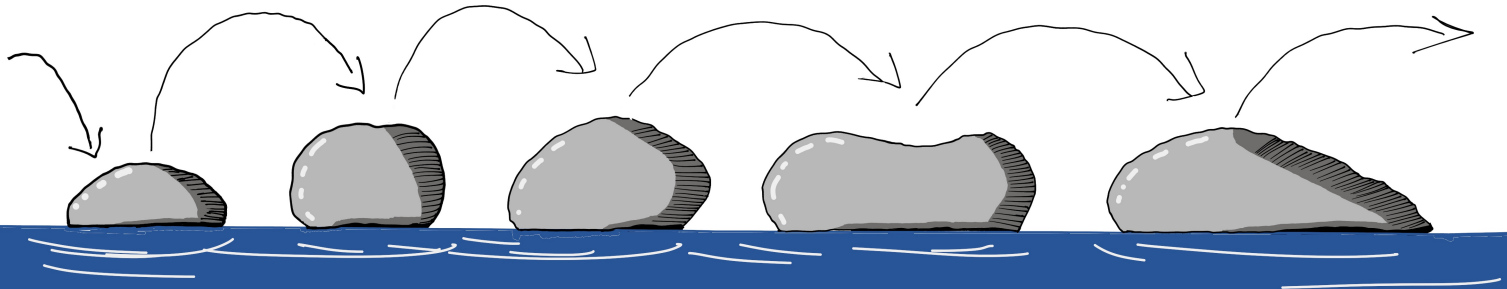
Determining whether a concept is critical to your research hinges on its theoretical centrality, empirical tractability, and recurrence in scholarly discourse. One key indicator is the frequency and prominence of the concept in the titles, abstracts, and keywords of peer-reviewed articles within your field. If a term consistently appears in foundational or recent studies (particularly in high-impact journals) it often signals its importance as a structural or explanatory variable in the phenomenon you are investigating. Additionally, a concept's criticality can be assessed by its role in framing debates: Does it appear in the research questions, hypotheses, or conclusions of influential works? Does it serve as a bridge between disciplines or paradigms? For instance, in studies on climate adaptation, terms like "resilience" or "vulnerability" often emerge as critical because they organize both theoretical discussions and empirical measurements. Furthermore, a concept is likely essential if its omission or mis definition would undermine the coherence of your argument or the validity of your findings. To confirm its significance, trace how the concept is operationalized, contested, or refined across studies, and evaluate whether it directly addresses gaps or tensions identified in your BHARI. This literature-driven approach ensures that your focus remains on concepts that are not only relevant, but also possess heuristic power. That is, concepts capable of generating, for

you, novel insights, guiding theoretical decisions, and providing a framework to direct your research. These methods base your analysis in scholarly debates, and these concepts serve as intellectual anchors. Furthermore, enabling you to identify gaps, refine hypotheses, and eventually contribute meaningfully to the advancement of knowledge in your field.

In the preceding sections, we have traced the evolution of a Big Hairy Audacious Research Idea (BHARI)—from its origins as a bold, often abstract ambition to its refinement into a focused, falsifiable hypothesis. This process demanded a deliberate shift: first, by deconstructing the BHARI into its core concepts, questioning their definitions, relationships, and empirical implications; then, by converging on the most critical variables through iterative analysis and literature engagement. The result is not merely a hypothesis but a strategic research proposition. Now, with a hypothesis in hand, the next phase of your research roadmap begins: conceptualising and their accompanying operationalising variables. This transition marks the point where theoretical curiosity meets empirical inquiry, setting the stage for data collection, analysis, and the pursuit of meaningful answers to the questions that inspired your BHARI.

You are welcome to return to this chapter (BHARI) with a more profound understanding of concepts and dissect your BHARI even further. As promised, the next chapter marks the transition from BHARI to questions to a theoretically grounded, well-defined hypothesis.

The (for now working) hypothesis is serving as a major stepping stone of your research roadmap. Here, we move beyond the abstract principles of BHARIs, heuristic concepts, and hypothesis formulation to explore how these elements coalesce. Up to the next step, what and how of conceptualisation.



A high-resolution photograph of a lush green lawn, densely packed with various types of grass. The grass blades are vibrant green, with some showing slight yellowing or brown tips, suggesting natural growth and perhaps some dryness or wear. The lighting is bright and even, highlighting the texture of the grass. Overlaid on the center of this image is the word "Conceptualising" in a bold, yellow, sans-serif font. The text is clear and stands out against the green background.

Conceptualising

The generative cycle of conceptualisation towards questions and understanding

