Description

What is Basic Research?

In simple words, basic research (also known as pure research or fundamental research) is conducted with the sole objective of contributing to existing knowledge by gathering information.

Critics, however, argue that such research panders to general curiosity without demanding practical outcomes that generate a return on the research dollars invested. Broad questions about “life, the universe, and everything,” they say, may contribute data, but without clear research criteria, that data becomes foundational at best.

Basic science helps researchers decipher the fundamental theories behind their subject area. This form of research creates a better way to predict, define, comprehend, and evolve theories.

What is Applied Research?

Applied research seeks to answer specific as opposed to general questions, and does so with the intent of delivering practical applications that can improve human well being. Hopefully, those practical applications will be commercial in nature and generate enough sales revenue to deliver a strong return on investment (ROI).

As an example, a neurologist studying the brain to contribute to a broader knowledge of how the brain functions, would be conducting basic or pure research. That broader knowledge data gets added to the existing data already gathered about the brain but does not deliver an immediate application.

By contrast, a neurologist studying the impact of Parkinson’s disease on the brain in the hope of identifying new deep brain stimulation (DBS) technologies is conducting applied research.

Key Differences Between Basic Research and Applied Research

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Basic Research	Applied R
Focuses on acquisition of new knowledge or existing knowledge	Focuses on practical solutions derived
Theory-oriented	Practical-oriented
Responsible for breakthroughs	Responsible for solving specific resea
Example: An investigation into symptoms of Dengue	Example: An investigation to determin

The Financial Realities of Research

Whether you prefer the analogy of a pie, a bucket, or a checkbook, research funding is inevitably limited. As a result, researchers must compete for that funding by justifying why project A should be funded as a priority over projects B or C.

The Organization for Economic Co-operation and Development (OECD) estimates that around 70% of research funding comes from private sources (companies, non-profit foundations, philanthropists, etc.), 20% from universities, and 10% from national governments. That places considerable pressure on researchers to deliver the results that their paymasters are looking for when they write the check for project A instead of project B.

If the practical reality of research funding has truly become “no money without a clear ROI,” is there a future for basic research?

Research Needs a Solid Foundation

The division between basic and applied research is not as clear as we would perhaps like it to be. Applied research may deliver practical applications, but it is only able to do so by calling on the foundational data contributed by broader basic research studies. In addition, if all research data contributes to the broader body of knowledge, it may be argued that applied research feeds into basic research, and vice versa.

In the long run, if those broader basic research studies are underfunded as a lower priority to high-profile applied research projects, the quality of foundational data will inevitably suffer. Slicing up the

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same foundational data into smaller projects in the pursuit of practical applications without refreshing the data with new basic research projects can only lead to homogeneity.

Making a long-term commitment to quality foundational data can be challenging when corporate paymasters want a faster ROI, but without it, basic research projects are in danger of being relegated to token projects for the institutions that have enough funding to support them.

Category

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