THE IMPORTANCE OF HOW WE KNOW WHAT WE KNOW: A Brief Outline

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SCIENTIFIC INQUIRY

Different from intuitive knowing, beliefs or mythological assumptions, scientific inquiry follows a specified process for finding out new things and/or confirming what is thought to be true. There is an agreed upon methodology for gathering evidence and the process of inquiry is reviewed by peer scientists.

Causality / Etiology

Causality explores the relationship between cause and effect. What causes something to be as it is? What is its origin? How does change happen; what causes things to evolve and transform?

The underpinning belief is that to move forward successfully, we first need to go 'backward' to understand origins a.k.a. root causes. Whether physical or social science, organic or inorganic, scientists are inquisitive about the origin of things believing that, if origins are understood, solutions to problems will more easily be found setting the stage for greater innovation to happen. Causality can be linear or multi-factorial and circular. In the social sciences causality tends to be multifactorial.

EPISTEMOLOGY

Epistemology is the study of knowledge and how knowledge is acquired.
To put it simply, 'How we know what we know'. Epistemology asks us to think about the thinking mechanisms and orientation we use to conduct an inquiry. Epistemology explores our rationality.
Episteme = Greek for knowledge + ology / logos = Greek for 'through the word' implying a logical discourse.

Two main epistemologies currently dominate scientific inquiry:

- Reductionism
- Holism and General Systems Theory

A third epistemology, Wilber's Integral Approach, which attempts to integrate the above two, is currently being considered.

A Comparison between Reductionism and Holism

REDUCTIONISM	HOLISM & SYSTEMS THEORY
Pays attention to the PARTS and wants to reduce everything to the smallest part. Emphasis on basic building blocks – studies their characteristics, often in isolation	Pays attention to the WHOLE and the relationships between the parts. Honours complexity Accepts Quantum Mechanics and unpredictability
Causality is linear	**Causality is circular & multi-factorial**
Summative: a process of addition indicates the sum of things	Non-summative: the whole is more than the sum of the parts
ANALYSIS	SYNTHESIS
Asks 'why' repeatedly	Asks 'what, where, when, who, how' & why
Either / Or	Both / And
Duality / Opposites	Polarity / Complementarity / Non-duality
Aristotle, Newton, Descartes	Quantum Physics and Ecology

SYSTEMS THEORY CONCEPTS AND DEFINITIONS USEFUL TO FAMILY THEORY

While Reductionism has gifted us many of the advances of the modern world, when it comes to human beings and their relationships, a holistic and systemic approach is better suited to exploring the complexity of us human beings, our families, our families of origin (FOO) and the communities we live in. To do so, we need to understand the concepts of ecology, system, wholeness, pattern, feedback loops and change.

Ecology

Systems Theory draws on the science of Ecology, which studies the inter-relationship of organisms and their environments. Organisms and their environments interact in a simultaneous, mutual and reciprocal fashion. These interactions are not random but have a specific organization. This concept is a very useful when exploring complex systems such as families, organizations and communities.

The researcher / facilitator decide what and who to include and exclude in the inquiry. A system's boundaries are always arbitrary thus requiring awareness, responsibility and accountability.

System

A system consists of **parts**, their characteristics and all their inter-relationships. These aspects constitute the **structure** of the system, while the **specific relationships** that connect all the components in an identifiable whole constitute the **organisation** of the system. The concept of ecology provides an excellent metaphor to describe this phenomenon.

Wholeness

Every part of the system is so related to every other part of the system in the context of time and space, that a change in one part of the system will cause a change in all of them and in the total system. We say a system behaves coherently.

Pattern

Gregory Bateson said that where there is pattern there is significance.
Patterns of behaviour are everywhere. They help to make life predictable and thus we feel secure. Like a dance, the choreography may be intricate or easy, conscious or unconscious. Invariable we make our moves in a very predictable fashion and dance the same dance over and over.

Feedback

This means that part of the system's output is re-introduced into the system as information about that output. On the basis of that information, a system acts to correct, regulate and modify itself.

Positive Feedback = stability, persistence, no change
Negative Feedback = change

Stability and Change

These two processes always occur simultaneously in any system. Think of a tight rope walker.
The elements and the relationships between them are constantly subject to change, while the identity of the system remains unchanged e.g. family members mature, some die, others are added (babies, partners) or as in a factory man, machine and materials may change but the system's identity stays intact.