

Enlightenment Reason versus a Holistic View of Human Knowing and Science

The Enlightenment distortion of human reason and science

The Enlightenment gave rise to a double distortion of human reason. The first tendency was to make reason an absolute; Reason with a capital. One of our many ways of functioning was elevated to the most important human ability in order to control all the rest of life, including human behavior and society. When the ability to reason, explore and experiment is absolutized at the expense of all other ways of functioning, the entire human personality and society become distorted. The liberation of science from the control of religious authority became a new final authority over the rest of life. Before long - during the industrial revolution - science and technology were enlisted to serve economic gain and political domination that led to exploitation, ecological disintegration and the distortion of society and the human personality. Scientific, political and personal freedom became once more in jeopardy, in spite of the progress that was made on so many fronts.

The second distortion is inseparably related to the absolutization of reason. When everything is reduced to a scientific object that can be categorized, controlled and manipulated, then all life becomes objectified and commodified. Then everything is violated and distorted. In this process human reason has become "instrumental" reason. Scientific rationalism has gone through many different phases and functions in the Western world. Today's form is primarily in the service of a mechanistic, utilitarian, dominion-over-nature worldview. It is this kind of approach that has and still largely dominates conventional resource management like forestry, fishing, agriculture etc. Fish stocks, for example, are like discreet commodities that can be kept in balance and provide a maximum yield by means of certain regulations related to catch sizes, kinds of species, closed seasons, size of nets, etc. It is a very calculated, rational and scientifically managed approach. It is part of the great transformation of treating all lands, forests, natural resources and even peoples' labour as potential commodities for the market; all for the pursuit of private wealth for the few. It involved a radical change in social attitudes, in which people became alienated from themselves, each other and nature.

It is in the face of these distortions - making reason in a new kind of ultimate security and everything else into an object for rational and technical control - that we need to delineate an alternative view of human knowledge and science.

A holistic view of human knowing and science

In contrast to Cartesian dualism of mind versus matter, of subject versus object, of culture versus nature, of humans versus the environment, our underlying assumption is that all of life, including human life manifests a multi-dimensional unity. Nothing is two-dimensional. There are many aspects to life that exist as a complex inter-related unity. Any dimension is an integral part of the whole and cannot be separated or isolated from all the other dimensions without distorting and violating the whole. All subjects function physically, organically, sensitively, creatively, technically, symbolically, cognitively, socially, economically, politically, relationally, and spiritually ('meaning-fully'). Not only humans but all

creatures manifest such a richness and many-sidedness that ought not to be violated. There is a multi-dimensional coherence and interaction in the way we function. In each activity and in each relationship, every dimension is present and plays its role.

Phenomenological givens

The many inter-connected aspects are not arbitrary or endless. At this point in history and our western culture about a dozen or so fundamental, irreducible dimensions have become differentiated. These dimensions are given in our experience. They are not categories in our minds or ontic qualities. They are part of *the phenomenological givens of life*. There are no universal laws, no eternal ordinances, no absolute identities, and no unchanging structures that we can identify and possess. Nor is the opposite true, that everything is change, that there is nothing but change and there are no givens or regularities that we can come to know. Historically, from the Greeks on, these two viewpoints have gone back and forward, between abiding structures and relentless change. In either case 'structure' or 'change' has been made into an absolute. What is needed is a viewpoint that acknowledges and integrates the truth of both. The words '*structure within change*' may begin to describe how these two characteristics of reality are interrelated.

There is no doubt that *things change* over time and *new features of each dimension keep unfolding*. Historically, all creatures in all their dimensions keep unfolding, differentiating, and integrating further. Older knowledge, however new and exciting at the time, becomes out-dated. We only need to check the history of any human activity or the history of any academic discipline to realize the changes that have taken place over time, geologically, geographically, organically, as well as socially and culturally. At the same time we are aware that there is an *abiding continuity* in life. Each irreducible dimension of life keeps revealing more of itself throughout history and in different cultural settings. Undifferentiated dimensions become distinct and take on their own form. Historically there is an on-going process of differentiating, individuating, and integrating. During the millions of years of geological and physical time, things can undergo subtle or more drastic changes as a result of climatic changes, geological upheavals, or human activity. All phenomena continue to reveal more and more of their potentiality and possibilities. Nothing is fixed or static, whether it is the expanding universe or the marvels of nano particles. Everything has its secrets and there is always more to discover, even about the "law of gravity", which seems so fixed to us. Yet in the midst of all this there are *regularities or a phenomenological givenness* that we count on, in spite of changes over long or shorter periods of time.

An alternative epistemology: a summary

The emphasis on a non-rationalistic alternative is crucial since rationalism in all its various forms dominates scholarship and distorts life. This anti-rationalistic viewpoint is not a crusade against modern science, but an appeal for the development of an integral view of science that is truly free and serves life and not just the economy. It is in opposition to the absolutization of science and technology; against 'in science is our trust' and 'we will find technological solutions to all our present-day problems', and many other variations of this belief. *As an over-emphasis, it has become an ultimate trust and basic belief.*

Science and technology will solve the crises of our civilization. With today's globalization and the domination of neoliberal capitalism this belief has spread far and wide. As part of the driving force of capitalism it has brought humanity and the environment to the brink of disaster.

Because of this long rationalistic history in Western society, we will present a brief summary of the nature of our cognitive functioning in general. This viewpoint goes against the centuries-old tradition of scientific rationalism and warrants careful attention. If we do not absolutize scientific reason and its application in economic theories and guidelines, what place does our reasoning have in life and what could its role be in economic activities? What follows is a *brief summary of an alternative understanding of human cognition, or an alternative epistemology.*

What role does human reasoning or better, distinguishing play in daily life? This may seem like an obvious question, but it refers to a complex issue. Does our reasoning just happen inside our minds or is there more to it? If so, how does reality enter the picture? A common view is that through our sense perceptions we take in raw data from our environment which we order and categorize in our mind. The raw data out there have no discernible meaning. They are random facts or raw data; that is all. *We give* these raw sense perceptions meaning. They have no meaning in themselves. In this viewpoint a table is just some chunks of wood or metal, which in our culture we happen to call a 'table'. In fact, it could represent anything. In this somewhat simplified account reason comes to stand over against matter. This mind-over-matter dualism in whatever variation has a long history and can be seen as a secular version of the age-old body-soul dualism. In an integral or phenomenological view of life this relation between our cognitive functioning, our other ways of functioning and reality comes out very differently.

We can say that *all of our cognitive functioning is embedded in the whole of our activities.* Thinking does not take note and discern, rather I think with the whole of my being. Distinguishing is only one of the many ways in which we function. There are many other dimensions to our lives and they each play their role in coming to know our world. One dimension may stand in the foreground but all the other ones are present as well. There are as many kinds of awareness as there are dimensions to our way of functioning. Most of them are submerged and just below the threshold of consciousness. At any time, however, when we stop to reflect, we may become aware of these other impressions about our body, our feelings, our relations, our sense of justice, the meaning of what we were doing, and so on, because all along they are an integral part of our total experience. That is a first conclusion we can draw, just as everything else, we function in a multi-dimensional, integrated way in which one or more dimensions are in the foreground and all the rest in the background.

If this is the way we function as humans, in a multi-dimensional unified way, it immediately becomes apparent that if we reduce our functioning to one dimension, like the rational, or the economic, or any other aspect, how much we are distorting our existence. Then we become nothing but religious beings, rational creatures, or political animals. Then all of life is wrenched out of context and becomes distorted. Then we, and all other creatures with us, suffer. In as much as scientific rationalism, in its present dominant form of positivism, involves a basic reductionism, there is no way to harmonize this form of modern science with experiential knowledge. Much of present-day science has basically abstracted the

cognitive dimension of life from its integral coherence with all the rest of life and made it into an object for analysis. It is assumed that the result of such scientific research provides value-free, context-free, objective scientific evidence. Such reductionism distorts and violates reality. The cognitive side of things is not available by itself; it cannot be abstracted from the whole; it is always *contextual and intertwined and determined* by all the other aspects. Whatever is knowable is only knowable holistically, as an integral whole. Economic life is inseparably connected to the ecological foundation of life and the social dimensions, including social justice and it always involves a particular worldview and values. Economic processes too do not exist by themselves and cannot be abstracted from the real economy, regardless of what the economic textbooks tell us.

Summarizing, we can say, cognitive distinguishing is only one dimension of the integral ways in which we come to know. We cannot separate cognition from its embeddedness in all the other dimensions, nor can we reduce anything to one dimension in order to objectify and manipulate it.

As an aside, not all knowledge is cognitive; or only the result of our cognitive awareness and reflection. There are many other kinds of coming to know. In fact there are as many ways of knowing as there are dimensions to our experience. We know emotionally or intuitively, or as people have called it, we have 'emotional intelligence'. In the same way we have a social awareness, a bodily sense, a technical insight, or an aesthetic sensitivity, or sense of justice or spirituality. In all these instances the cognitive dimension is submerged and in the background. That is why in education, for example, there is a growing awareness of the different kinds of 'intelligence' children may excel in and which may be their favored way of learning. These 'intelligences' or ways of coming to know, can range from spatial and bodily knowledge, to emotional, technical, creative, social, or perspectival ('philosophical') knowledge. Good education will provide children opportunities to learn through anyone of their favorite avenues: through discussion and sharing, through listening, observing, researching, constructing, creative writing, composing a song, developing a dance, reading poems or stories, making a display, dramatizing a situation, making a graph, sharing activities and projects, etc. Those are all *equally* important ways for children to come to know and to respond to a particular subject or issue. Only after such a rich exposure and encounter with a subject does it become meaningful to draw out the cognitive dimension, the conceptual side of the subject. In such a learning environment, the majority of children with specific learning difficulties and others whose brain functions somewhat differently can more easily find their place and flourish. Such multi-dimensional learning and ways of responding is a long ways away from the highly conceptual and fragmented curriculum of much of public education today. This is true for adult education as well.

Inter-subjective cognition

The process of coming to know is always inter-subjective as we have already assumed in the previous sections. There are no brute data out there, no objects, without much rhyme or reason. From a phenomenological point of view, there is a countless array of phenomena that display a richness and a fullness that we can only come to know if we immerse ourselves in the experience. We encounter and experience concrete, whole phenomena that exist in their own unique way. Our coming to know the

other is always based on an interaction between two or more subjects. All subjects, including all non-living things, plants, trees, animals, and other humans exist as subjects, each in their own way. There are no subject-object relations, only subject-subject relations. As soon as we perceive and treat something or anybody as an object, we are violating the richness of the other, reducing it to a physical, biological, political, economic, or social object that can be analyzed, used, manipulated, dominated and exploited.

Modern science, if it had not been trapped in a formal analytical framework, could have learned, among other things, from the rich phenomenological tradition. It could have learned that it is *subjects* in all their subjectivity that try to understand *other subjects* in their subjectivity. For a while phenomenology was fruitfully practiced in Europe, at Duquesne University in the US, and other places. It gave rise to many outstanding studies in the areas of physiological anthropology, psychiatry, developmental psychology, education and religion. Even today the phenomenology of religion continues to make significant contributions to our understanding of religious beliefs and practices. They understood something of the personal and subjective involvement of the investigators and the rich phenomenology of their subjects. Regrettably it mainly survives as a philosophical movement investigating human consciousness, which seems like another form of abstracting. A similar more holistic understanding was beginning to develop in the many ethological studies of previous decades, observing animals in their natural setting, as well as in the anthropological and religious studies from an insiders' and participants' point of view. Most of these approaches have been sidelined and pushed to the background.

To give another example, a forest is never just a stand of two-by-fours to be harvested and sold at a profit. If it is not harvested, it is considered useless and of no value. In fact, many entrepreneurs would consider it wasteful to let it just stand there and not do anything with it. Such forests are reduced to economic objects. The real forest, however, has many different aspects of which the economic side is only one dimension and needs to be seen in the light of all the other sides. Only then can we truly relate and respond to a particular forest that exists in a particular place, that is of concern to a particular people, and, ultimately, to all of life on earth. To relate to a forest as an economic object, we need to close ourselves off from the richness and diversity of the forest and its ecological embeddedness. In the process we distort ourselves as well as that forest.

It is only in the inter-subjective flow between two subjects that we can truly come to know something of the other. When we open ourselves up, from our own many-sidedness, to the many sides of the other subject, we can truly come to know the other and ourselves, at least partially and for a time. Each subject functions in the whole of reality. They each exist in their own unique subject-ivity. All the aspects of reality, the organic, the sensitive, the aesthetic, the cognitive, the economic, the relational, etc., *truly belong to each subject*. Even physical objects are not just physical objects, they function in an ecological context and they have a discernible, aesthetic, economic side, and so on. These various aspects beyond the physical, including the cognitive dimension, are not just categories or attributes in our minds that we add to the raw data of our sense perceptions. 'Physical objects' too have a discernible side, as well as many other sides *that are inherent to their phenomenological identity*.

All of reality has a *discernible* side. There is a *discernible or cognitive* dimension to the trees in the forest *that is inherent to their phenomenological identity*. They present themselves as distinguishable creatures. Their 'tree-ness', is an integral part of and given with their subjectivity. We recognize that a tree is not a frog and that a bird is not a fish. We recognize some of them as pine trees, some as spruces, others as aspen. Even these more particular differences are given as distinguishable characteristics. Our experiential categories are merely *cognitive approximations or descriptions of the distinct identities* they carry. They are fluid categories, many of which have changed over time as a result of more detailed observations, or cultural use.

Today our classifications are strictly physically and biologically based, and even then there are many boundary questions and uncertainties. Experientially these boundary issues do not present a problem to us. Regardless, identities and general categories remain *cognitive approximations of what presents itself in our experience*. Both the general kind or identity (trees, frogs, birds, fishes) and the particular kind or categories (pine trees, spruces, aspen) of each subject are given in our experience. What is important to highlight in this context is that these kind of phenomenological identities are only a *cognitive description of their biological identity*, nothing more. It does not say anything about the uniqueness of each subject. Nor does it say anything about all the other aspects of trees, nor about the specific characteristics of any particular tree. Each tree has its own variations, no tree is exactly like any other tree, but we still recognize that we are looking at an oak tree and not a larch. *Individuality, or individual characteristics* like this specific oak tree with its gnarled trunk, its *uniqueness*, is something different than noting that it is a tree or more specifically an oak tree. Each day when we walk by this specific tree we may notice something new about its uniqueness and its many aspects. These descriptions of *general and specific kinds* or categories as well as *individual, unique features* are a long ways away from abiding rational categories by which we can classify and control our environment. Many indigenous or local people have a very extensive and intricate knowledge of such forests, far beyond most of us, based on long experience and tradition.

Because many people have become alienated from nature and their own bodily awareness and sensations, it is not easy to be aware and open to the richness of our inter-subjective experiences. Many things in our western culture are geared to numb and desensitize us to the reality around us. Whether sensationalized newscasts, relentless advertising, the double-talk of political and corporate leaders, reality TV, the stress of work, or our hurried way of life, they all contribute to our lack of awareness. They are an assault on our bodily and sensitive awareness. This can make us blind to the significance of a particular forest or the reality of the suffering around us, of countless indigenous people deprived of their livelihood and their way of life. In the end it can blind us to the decline of the quality of our own lives as well. Such numbing can easily lead to denial, rationalization and self-forgetfulness.

Scientific knowledge

Practical knowledge and generalities based on experience do not tell us what is characteristic of *scientific knowledge*, and how it may differ from experiential knowledge. The answer can be brief. Scientific theorizing, if done rightly, is not *inherently* different from the generalizing and conclusions we

draw that are based on our local experiential knowledge. Perhaps the best way to indicate the difference between the two kinds of knowing is that scientific hypothesizing, developing theories, experimenting, drawing conclusions, formulating, generalizing, etc. is done *systematically*. Such *systematic generalizing* based on actual personal and local knowledge is always flexible, approximate, and changing. Rationalistic or positivistic science tends to objectify the phenomena and abstract them from their integral context in time and location. Rather than an abstracting and objectifying science that distorts reality, we need a kind of scientific generalizing that is embedded in and based on experience and practice. Systematic generalizing in this context does not mean that these generalities suddenly take on an ontic identity; that they become scientific laws that exist as such. Systematic generalities are based on many particulars and a lot of experimentation and research. As particular situations change or new evidence accumulates, so does our understanding of the basic 'law' that seems to govern them. All we mean by systematic generalities is that in all these instances in this place and at this time, such and such seems to be the case. Some systematic generalities of course are broader and longer lasting, because they are based on long historical insights across many cultures, or they are the result of creative hunches and new experimentation. But even these long-standing insights that seem so certain do change over time or as the result of a breakthrough in understanding. The history of the natural sciences is very illustrative and humbling in this respect. We have no reason to smile at the 'childish' theories of a hundred or five or even two thousand years ago. Our present-day scientific insights too are limited and culture and time specific.

Theorizing, hypothesizing, developing mathematical models, drawing conclusions, can aid our praxis if they are based on actual experience or hunches that are tested in reality. They can serve life if they elucidate experience and further our insights. Many studies on depression and anxiety, for example, were so flawed, that as a practitioner, it was more useful to look at the ten year overviews and evaluation of the research than any specific study. Often the hypothesis to be tested was based on an abstract idea that did not arise from experience, or the 'tested population' was so limited and specific (college students, hospitalized psychiatric patients, prison inmates, etc), that no general conclusions could be drawn. To give another striking example, questionnaires for social work research tend to be meaningful only if they are based on in-depth personal interviews. Without such preliminary interviews, many questionnaires end-up containing questions that have no relevance to the people interviewed. There are countless other examples from many fields of study that illustrate how much academic research is limited and flawed, and as a result, irrelevant or meaningless. Usually the reason given for these shortcomings and failures is that academic knowledge accumulates slowly over decades. More often the reason is the faulty set-up and construction of the research, or favorite and in-topics that get research money, regardless of how meaningful the proposal. Added to all this are the basic presuppositions and the total cultural context of the research that colour the study from the beginning no matter how solid the research methods. Much of today's research is commodified.

Summarizing we could say that scientific generalities are no different in nature than particular cognitive insights. They are both contextual, relative to time and space, changeable, and experientially based. A particular refers to one instance, a generality to many similar instances. Generalizations, whether

systematic or experiential, do not lead to absolute, verifiable, dependable facts, concepts, definitions, categories, laws, models or theories; they can only provide provisional, open-ended approximations or suggestions. Ultimately it is our worldview or our presuppositions that determine the direction and context of our scientific research. Scientific theorizing, if done rightly, is based on the inseparable connection between *experience, knowledge, and presuppositions or worldviews. They are inseparably intertwined.* The different kinds of experiential knowledge or 'expertise', our systematic research and our worldview form an integral unity. Human knowing is inseparably connected to all the ways we exist.

Technology that serves praxis; an alternative to technicism

When technology is no longer in the service of 'economic growth', 'efficiency', 'material prosperity', and the accumulation of 'wealth', then technological innovations and developments can serve and open up all of life. When technology is liberated from the straightjacket of one-dimensional economic practices, then it can be guided by a very different vision. Then durability, practicality, usefulness, simplicity, elegance can guide technological creativity and innovations instead of obsolescence and the constant pressure of developing 'new products' in the quest for more profits. From out of a different economic vision and practice it is clear we do not need ten or more kinds of toothpaste, cereals, cell phones, cars, vacuum cleaners, bicycles, razors, computers, toasters, televisions, soft drinks, and an endless number of other products. In most instances we only need a choice of a few kinds of anything. Imagine how many resources and materials could be saved. Then obsolete or outdated parts can simply be exchanged and replaced on cars or computers. Then material things can once more serve and enhance all aspects of life and not just consuming for the sake of consuming. More electronic gadgets and 'toys' for adults and kids do not bring satisfaction or happiness.

Within a liberated technology creativity and innovation can be recaptured and celebrated. It is always astounding and surprising to see the innovative ideas people and research centres come up with. Within a different perspective these ideas can flourish and enrich life. To be an engineer within this context can be a great contribution and passion. Manufacturing and constructing can take on a whole new dimension. There are many examples of manufacturing things in innovative and ecologically sustainable ways that involve team work and shared responsibilities. There are astounding examples of new building materials and intriguing new ways of constructing, including less polluting ways of making cement. Small projects and models have been developed in different countries and have been shown at different international exhibitions.

New technologies and ways of manufacturing also provide a basis for what kind of metals and minerals and how much of each are needed in the future. If we start from the premise that in view of ecological survival 'two thirds' of resources or more need to stay in the ground, then it becomes crucial to know what resources are truly essential for the ongoing unfolding and enrichment of life. If the touchstone for technology and manufacturing is, *sustainability, durability, practicality, simplicity, comfort, elegance,* then it is not hard to know what metals and minerals are essential for our well-being. In this new context resourcefulness and frugality can come to its own again. Then it will also be possible to find ways to extract that 'one-fifth' of resources in an ecologically sustainable and socially just way.

Extracting and mining has taken place for thousands of years often by means of destructive and cruel ways (slave labour) that create health hazards and pollution. It can also be done differently. There are already surprising examples of non-destructive ways that protect both humans and the environment.