The Art of Knowing

Epistemological Implications for a Schooling of the Imagination

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Introduction

The field of epistemology is not solely of significance in the wider field of philosophy and social science. Knowing the world, as well as our knowledge of the world, arises through epistemological processes that are often hidden to our everyday cognition. This paper engages, firstly, three contributions from thinkers who have reflected deeply on our contemporary ways of knowing. This investigation is followed by a historical study of a way of knowing exemplified in the hermetic "philosophers of nature" who, working before the Enlightenment, saw the path of knowledge as rooted in a dynamic interweaving of artistic, scientific, and contemplative disciplines in their "Art." The study as a whole aims at identifying and articulating capacities that can be developed—in the sciences, arts, and education, for example—which would complement the one-sidedness of much of modern thought, one-sidedness which arises from a dominance of intellectual, abstract, and analytical ways of knowing.

Epistemology, also known as "theory of knowledge," is generally regarded as the branch of philosophy concerned with understanding the act of knowing and the limitations inherent in the act of knowing. Through posing questions such as "How do we know what we know?" "How is knowledge acquired?" "What is knowledge?" the epistemological enquiry turns attention to the very activity which lies at the root of all sciences, arts, and—in actual fact—at the very foundation of our everyday cognitive activity. Addressing as it does the very nature of how we know the world and ourselves, the question arises as to whether we are in fact dealing with merely a "branch" of the discipline of philosophy or with something of much more far-reaching importance.

The Context for Epistemological Enquiry

In my personal experience of formal education—representing sixteen years of my life—epistemology played only a peripheral role, its formal engagement featuring only in my mid-twenties. Furthermore it was generally the case that all of the literacy, mathematics, history, science, language, arts—all of these were taught in such a way as to seem "free" of epistemological considerations. For much of our early educational career (i.e., throughout childhood and young adulthood), this is clearly essential, as an engagement with epistemology requires a certain maturity of cognitive development and reflective capacity. It is quite remarkable, however, that once the self-reflective learner emerges, the study of epistemology is not required to accompany studies in the sciences, medicine, politics, economics, and so forth, all of which are formative influences on our lives. The apparently optional stance taken towards epistemological inquiry continues beyond the bounds of formal education to be prevalent in much of mainstream cultural life. What is the significance of this stance?

> Epistemology and the epistemological foundation for our way of living requires a much deeper engagement and examination than it is commonly given.

Consider the following statement by the author and educator Parker Palmer (1993): "Every way of knowing becomes a way of living, every epistemology becomes an ethic."[1] This far-reaching statement strikes me as being poignantly relevant for several reasons. Firstly, we have on any given day access to a number of accounts of events in both the human and natural worlds which reveal threats to the integrity of social and ecological systems.[2] In many instances, concerted efforts are extended to ameliorate, mitigate, and diffuse these potential threats. However, the question arises as to how often, in seeking the source or solution to the evident dissonances experienced in our everyday lives, an investigation of our "conventional epistemology" is undertaken. How often do we find a call to investigate and re-evaluate the very epistemological roots that inform our individual and cultural actions?

These questions bring me to the second significant aspect of Palmer's statement, one that I have already alluded to above. In contemporary Western cultural life, the disciplined engagement with philosophy and epistemology has largely become sequestered in university departments, often as specialized branches of the social sciences inhabited by professional academics. This is to say that only very rarely do we find explicit mention of the "cutting edge" discoveries in the realms of epistemology, or politicians making reference to important philosophical points of view that are being considered in the shaping of policy—and, by extension, of people's lives.[3] Furthermore, when weight of opinion is given to science, for instance, or medical opinion, these disciplines are themselves rooted in epistemological frameworks that are very rarely made explicit and are often unexamined.

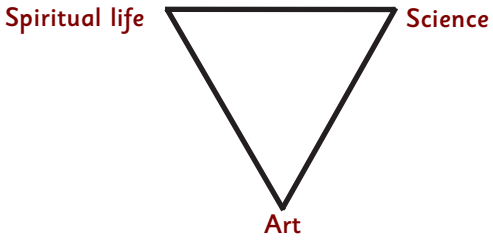
This has radical implications and raises the third key element in Palmer's statement, namely that ways of knowing are fundamentally ethical, even when they claim to be "objective," i.e., free of moral or ethical considerations. The implication lying at the heart of Palmer's statement about epistemology is that, far from it being an activity best left to academic specialties or even (and this perhaps is more challenging) remaining an optional undertaking, epistemology is everybody's business because it is essentially ethical.[4]

If there is truth in Palmer's statement, epistemology and the epistemological foundation for our way of living—both public and private—require a much deeper engagement and examination than they are commonly given. In what follows I will describe three perspectives from contemporary thinkers which contribute to a penetrating study of epistemology and how ways of knowing arise along with the development of consciousness. The study of the three perspectives articulated below will in turn reveal implications for the development of consciousness and "ways of knowing" in the fields of art, science, and the contemplative life. I will conclude with a further look at education, since it is in the realm of education that many challenges are arising due to a one-sided engagement and emphasis on a contemporary "epistemology of separation." Along with these challenges, opportunities to redefine the way we learn, the way we know, and the way we live arise as well.

Ways of Knowing: Three Perspectives

The Demotion of Direct Experience: Ronald Brady

Through a personal journey that engaged the natural sciences and encountered problems in the way scientific knowledge is defined, philosopher Ronald Brady proposed a thorough investigation of the basis to our cognitive life. In his book *Being on Earth*, written together with Georg Maier and Stephen Edelglass (2006), he traces the historically significant developments



in the Western mind that have given rise to a "one-eyed color blind onlooker"[5] approach to science and a concurrent positivist and empiricist mindset. It was this mindset that Brady met in several professors when he sought to engage in an experiential (sense-based) and qualitative study of natural phenomena. Brady encountered what still lives in much popular reporting and teaching of science, as well as through education generally, in much of our Western culture: namely, an inherent distrust of our un-mediated sense life as a door to knowledge about "the world." Brady writes in the chapter titled "Direct Experience":

> One of the difficulties with scientific accounts of the world is their apparent insistence on an "objective" reality that cannot be directly experienced, with the resulting demotion of experience—what our senses make out of the world—to a mere show that differs substantially from "what is really there." This is something we all know and do not think about very much. (2006, p. 12)

Brady traces a particularly poignant contribution to this development of consciousness and its view of the role of the senses in cognitive life to the work of Galileo.[6] Galileo's distinction between primary and secondary qualities of observed phenomena is often referred to as an essential contribution to the development of modern science and the modern scientific method. Brady calls this moment the demotion of direct experience, with the result that from the time of Galileo the human being "begins to appear for the first time in the history of thought as an irrelevant spectator and insignificant effect of the great mathematical system which is the substance of reality." (Burt, 2003, p. 90) It is this relegation of the subject and his or her unmediated sense experience to a secondary (and either insignificant or potentially inappropriate) role in the acquisition of knowledge and truth that Brady wrestles with in *Being on Earth*.

To a large extent the experience of being a subject separate from a world of objects—many of which appear not to present their essential being to our senses—seems self-evident. It is, as it were, the nature of reality out of which we emerge or mature as a given. This naïve realistic stance to the perceived world lies at the basis of much of modern cultural experience. It is the experience that I have of being a distinct subject who perceives a world of objects separate from me and external to each other. Furthermore, this world seems self-evidently to exist—to be there—without my contributing to its manifestation in any way. On the contrary I experience it as manifest and myself (on the whole) as a passive receiver of impressions that arise from my encounter with it. There is, however, more to this experience than meets the eye.

Cognitive Amnesia: Henri Bortoft

The problems—of knowledge, of philosophy, of science, of living—that derive from the subject/object divide, upon which both our everyday cognition as well as our disciplined scientific research are founded, have been articulated at length by a wide range of authors. They have occupied the human mind from the time when the medieval view of Man as Microcosm of the great Macrocosm began to wane. The earlier unified worldview essentially gave way to the subsequent—and still dominant—dualistic worldview. Obviously it does a disservice to this vast chapter of human thought and expertise to go no deeper

into the various voices who have engaged the significant issues raised regarding the nature of knowing, of consciousness, and of conscience. Suffice it to say that since the time of Galileo,[7] we have struggled with the problem of whether it is our thinking or our sense activity that can be relied upon to give us "true" knowledge of our own unique self as well as knowledge of the universe in which we find ourselves.

Coupled with this deep-seated problem is the question of subjective versus objective knowledge, articulated by Brady so clearly in his work (Maier, Brady, & Edelglass, 2006). In the twentieth century, work undertaken in the history and philosophy of science contributed new light to these intractable issues. Henri Bortoft is one author who has made significant contributions to the problems of knowledge. Setting out to look, from a philosophical point of view, at the way in which J.W. Goethe approached his studies in natural science, Bortoft has illumined significant aspects of our cognitive life.

Using an ambiguous drawing of what appears to be a "random patchwork of black and white areas" in a circular frame, Bortoft (1996, p. 50) presents a very striking experience of the relationship between our sensory activity and our thinking activity. After a time, and with some intentional activity directed toward the image, a figure emerges from the previously chaotic collection of black and white patches. A giraffe's head is "seen." There is much to be gleaned from this experience. In time, the initial effort expended on the attempt to see some recognizable form within the seeming chaos of black and white shapes—which gave rise to "seeing the giraffe"—is reversed in that considerable effort of attention is now required not to see the giraffe. This becomes a bridge to the realization that, whereas much—in fact the majority—of our everyday cognitive life is rooted in the experience that we encounter the world and its objects as if they were just "there," in actual fact we are largely unaware of the organizing activity through which these objects become apparent. The difficulty is that we are no longer aware of that side of the cognitive act which contributes to the "seeing," as this is no longer reliant on an activity of will. Bortoft refers to this conundrum as "cognitive amnesia" (1996, p. 139)—amnesia because, in our cognitive perception as we naïvely experience it, we are no longer conscious of the fact that we see or experience something only by means of an organizing idea that imbues with meaning an otherwise chaotic life of pure sense perception. As Bortoft puts it:

> All scientific knowledge, then, is a correlation of what is seen with the way it is seen. When the "way of seeing" is invisible …, then we live on the empirical level where it seems to be self-evident that discoveries are made directly through the senses. In this "natural attitude" we have no sense of our own participation, and hence we seem to ourselves to be onlookers to a world which is fixed and finished. Forgetfulness of the way of seeing is the origin of empiricism, which is still by far the most popular philosophy of science, in spite of all the discoveries in the history and philosophy of science which show that it is a philosophy of cognitive amnesia. (1996, pp. 138–139)

We live within a dimension of mind which is as invisible to us as the air we breathe.

Bortoft's description of the nature of cognition has broad implications for consciousness. Though barely adumbrated, the role of the organizing idea in cognitive perception brings him to the realization that "we live within a dimension of mind which is

as invisible to us as the air we breathe." (1996, p. 141)[8] This realization could profoundly influence the way in which we practice science, the way we teach science (and the way we educate in the broadest sense), and indeed the way in which we engage in everyday life. It allows us to posit the idea that in order to address the issues we encounter in the realms of nature and society that are inimical to health and wellbeing, we would be wise to undertake a concerted investigation into the aforementioned "dimension of mind." As with Palmer's statement above, Bortoft's realization implies that working to make our epistemology explicit is a crucial step in becoming ethically responsible.

Kühlewind describes the diseased consciousness as being a collective disease, and because collective, generally unrecognized.

A Collective Disease: Georg Kühlewind

Whereas Brady highlights the origins of the "split"[9] and Bortoft traces out the epistemological intricacies of the contemporary mind, Georg Kühlewind examines the process by which this state of affairs has developed.[10] He does so through a study of both the biographical and historical development of consciousness, as revealed through such diverse phenomena as the development of language and speech, the phenomenology of the processes of thinking and perceiving, and the nature of art. Kühlewind concludes—in a way reminiscent of Bortoft's cognitive amnesia—that modern consciousness is diseased. In his book *From Normal to Healthy* (1983), Kühlewind describes the diseased consciousness as being a collective disease, and because collective, generally unrecognized. He attributes the causes of this disease to mistaken experience or mis-identification. His argument is rooted in both historical (cultural) and individual (developmental) observations that differentiate between two levels of consciousness.

The superconscious, Kühlewind proposes, is the realm from which all other elements of consciousness are derived. The superconscious is the realm of the living activity of the "I." As the living, dynamic source and seat of consciousness, the superconscious is not generally witnessed or included in our account of our experience because of its primacy and the fact that it is the very wellspring of consciousness itself. Trying to bring this aspect of consciousness to experience is like "looking for the ox you're riding on." (Kühlewind, 1988, p. 53) In Zen Buddhism koans were used to pose illogical questions or stories in order to bring about in the mind a type of metanoia in which normally overlooked aspects of daily experience were revealed. Kühlewind offers something of a koan for our modern mind with the phrase: "The past is, the present becomes" (1988), a phrase which seeks to point consciousness toward its source as well as highlight the challenge of experiencing superconscious becoming in our everyday awareness. The question then arises: How can we say that the superconscious exists if it cannot be experienced directly?

Let us look at how the superconscious may indirectly be revealed. Kühlewind (1988, p. 25) points toward such a possibility with the question: "How can a being who neither speaks nor thinks learn words, language, and thinking?" The first words that a child speaks must be learned without words or explanations! This remains for linguistic science quite a conundrum.

Children understand their first words directly, without words, intuitively. Or, to put it another way, they understand through such

a deep internal imitation of the speaker that they "imitate" not only the words but the meaning of the intended speech. They identify themselves with the source of speaking, which is the "I" of the speaker. They have no other way of understanding anything: No explanations are possible. (Kühlewind, 1988, p. 25) Kühlewind goes on to conclude:

> By observing the child's acquisition of speech and thought, we can see that this process requires the faculties of thinking, feeling, and willing in order for the child to develop into a speaking adult. Yet these faculties function quite differently in the child and adult. We might say that they are not yet separated from one another for the child, but form a single faculty. …[I]t might be called a superconscious ability. (1988, p. 28)

From this example of early speech acquisition, Kühlewind follows the development of consciousness in which these initially superconscious faculties and capacities give rise to formations and habits of thinking, feeling, and willing that are no longer form-free but instead increasingly individualized and often quite fixed or formed. (Bortoft's ambiguous image of the giraffe was designed to capture this experience of moving from form-free to form-fixed perceptions.) This realm of soul is designated by Kühlewind as the subconscious. Everyday consciousness, for the adult at least, is positioned between the two realms of consciousness and—as in the example of cognitive perception given above—everyday experience is generally oriented toward the finished forms of thought and feeling and does not experience that activity by which these contents of experience arise. It is the superconscious from which the everyday contents of consciousness are surveyed and witnessed, but as consciousness is conscious of these contents and not of its own present awareness, the former has the characteristic of appearing much more "real." Kühlewind's far-reaching study can be encapsulated in the sentence: "Our consciousness is a past consciousness, conscious of its own past." (Kühlewind, 1988, p. 15)

Summary

Having enquired into the potentially far-reaching implications of epistemological reflection, and having offered three contributions toward an understanding of contemporary ways of knowing, we find the following situation. In the realm of science (and for our everyday cognition), the "objects" of our awareness are experienced as "given"; the processes of consciousness that "objectify" them in the first place are not experienced (Bortoft's cognitive amnesia); the self or subject lacks true self-experience due to the "disease of consciousness" (Kühlewind) and comes to doubt its own existence;[11] the superconscious capacities out of which self and object arise are no longer experienced, and "reality" becomes ever more displaced into an abstract, quality-less realm accessible only to the dis-embodied mind (Brady). This state of affairs is further complicated by the fact that questions of ethics with regards to our knowing activity, and the manifestations of our knowing in our actions, have also been subject to the great separation—left to the discretion of the individual thinker or relegated to a specialist realm of philosophical enquiry. The implications are striking, for the way we experience the world, the way we do science, the way we educate—in short, the way we live—is informed by this epistemology of separation. Kühlewind sums up the quandry:

> Science has been established on a level of consciousness where it cannot be adequate to the reality of Nature and the Human Being. (1993, p. 5)

In view of the path outlined above we could expand on Kühlewind's statement and ask whether, in more general terms, our way of learning, knowing, and living is adequate to the reality of Nature and the Human Being. In order to ground this question and the themes I am pursuing further, I would like to place them in the context of my own experience of education, of seeking to know Nature and of encounters in the social realm.

Imaginative cognition can bring into a meaningful relationship the insights gained from the disciplines of science, art, and the contemplative life.

Pathways

Epistemology is not an option. Science, at least as it is encountered in its popular sense, is inadequate to the task of revealing the reality of Nature and the Human Being. The kind of thinking underlying contemporary science evidently results all too often in fragmentation and the degradation of life. I experienced this at first hand during many years of travel through Asia, Australia, North America, and Europe. By the age of eighteen I had developed something of a distrust of thinking, which I experienced as the "pale cast of thought."[12] This type of thinking seemed to be at the root of the many social and environmental ills that came ever more to my attention. As a result, there followed a period in my life when I dove deeply into an experiential exploration of the world, a time rooted largely in the life of the senses, in which I traveled and lived in a number of countries very different from my place of origin.

After some years of travel there arose in me a new tension, which now I can say was rooted in what Rudolf Steiner describes in this way: "A thoughtless traveler and a scholar living in abstract conceptual systems are equally unable to have rich experience." (Steiner, 1995, p. 101) What I needed was a way to orient myself to my own experiences—still largely fragmented and disjointed—and to a culture deeply rooted in an epistemology of separation. The questions that grew to be very strong in my mind were akin to Kühlewind's line of enquiry: What way of knowing is adequate to understanding the reality of the Human Being and Nature? Has such a way of knowing existed and been lost, or has such a way of knowing yet to emerge? How can such a way of knowing be cultivated? What would the implications of such a way of knowing be for the various realms in which human consciousness is engaged? The pursuit of these questions led me to a significant encounter, an encounter with a way of knowing articulated in the form of an image.

Ways of Knowing: Science, Art, and the Spiritual

Reproduced at the end of this article (see p. 49) is an image from the work of Heinrich Khunrath, a physician, hermetic philosopher, and alchemist from the 16th century. The image (from Alexander Roob's book on *Alchemy and Mysticism*) encapsulates within the circular frame those elements deemed necessary by Khunrath and alchemists of the time for progress on the path of knowledge. These are depicted in the three primary sections of the emblem. In brief we find in this emblem a depiction of the tri-unity of spiritual practice, the study of natural phenomena, and art. To see this visually, in a condensed form, we see in the emblem the following:

Natural philosophers of the time understood that our insights come via "grace." We may work, strive, question, and pursue knowledge of the world, but we must at all times be aware that our knowledge arises by grace. Thus a conscious, contemplative attitude is essential, and is in fact the first

step in the alchemical process of enquiry.[13] We find this emphasis in contemporary language in Kühlewind's articulation of the superconscious and its role in the formation of both everyday consciousness and scientific consciousness (both of which function on the same "plane," though differ in intensity). Insight, from this perspective, arises from the superconscious as grace—a received gift. Working in the laboratory, between the pillars of experience and reason, we investigate the mysteries of nature. Referred to as "the Art," the hermetic methodology included the instruments of expression (depicted as musical instruments), expression both of insights derived from the Work and of the divine harmonies informing Nature's creative unfolding, the Harmony of the Spheres. This then is an epistemological process comprised of three mutually interpenetrating activities each with its own "laws," methods, and materials.

The kind of thinking underlying contemporary science evidently results all too often in fragmentation and the degradation of life.

In Khunrath's emblem a way of knowing is articulated which embodies an integrity that was subsequently fragmented and lost due to changes in human consciousness (see note 7). This change represents a key chapter in the history of ideas and has been referred to in several passages above. The approach to science articulated by Brady in *Being on Earth* has, in this light, grown out of the fragmentation of the relationships depicted by Khunrath. The disciplines of the artist and the scientist are still largely viewed as being separate and incongruent in method and intent.[14] To depict the relation of these disciplines in modern times, we would need to isolate the three elements in quite separate compartments. Fragmented and compartmentalized, science, the spiritual life (including religion), and the arts have been relegated to different quarters, and science has claimed for itself the authoritative voice in matters of truth and certainty. This science, severed from contemplative practice and prayer, has become inimical to these realms.

When I first encountered this image and the methodology it articulated, I felt that here was an epistemology and a method that held within it certain key points of reference. It asked of the individual student of Nature and of the Human Being three very important questions:

1) What is your study/research?

2) What is your art?

3) Do you cultivate a conscious connection to the spiritual (or superconscious) source of both of these?

Through study, by which I mean science in its commonly understood practice as well as the study of the insights of other researchers, we can develop our thinking and cognitive capacities. I would also emphasize the crucial activity of epistemological self-reflection in this realm, since any act of consciousness is subject to the dynamics that have been explored above through the work of Brady, Bortoft, and Kühlewind. Through the arts, we bring to expression something of our own personal experience and strive to lift it to speak of/to that which is universally human. Through the spiritual life, we cultivate a contemplative method with regards to our subject matter as well as a conscious attitude of mind and heart that is nurtured when we apply ourselves in either of the aforementioned ways. As Arthur Zajonc has described so clearly in his article "Love and Knowledge" (2006), a contemplative methodology includes and seeks to cultivate an ethical stance to both one's science and one's art. It is the contemplative method and practice which places our work on an ethical ground

and ensures that it doesn't get caught in the traps of either an objective, impersonal, and "value-free" science which becomes antithetical to life,[15] or an artistic practice which merely embellishes the subjective, personal, and egoistic life of the individual.

In Heinrich Khunrath's depiction of the hermetic path of knowledge lies an indication for a way of knowing which may be adequate to understanding Nature and the Human Being. This way of knowing engages and honors the disciplines of science, art, and contemplative practice in their own right while also recognizing the value of finding a synthesis of insight arising from that prior engagement. From the perspective of the 16th century alchemists, this way of knowing mirrored processes in the laboratory, in living organisms, and in the natural world as a whole. They would probably have used the term *solve et coagula*, where we would now use the words *analysis* and *synthesis*.

I am not suggesting, however, by introducing Khunrath's emblem to the question of what may be an epistemology adequate to the reality of the Human Being and Nature, that some kind of re-invigoration of medieval thought is in order. Nor, however, do I suggest that the alchemical world view is merely of historical interest. Rather, I have found that the theory of knowledge being made explicit in the amphitheatrum emblem offers a rich reference and provides valuable insight for someone seeking, in a very different period of history, to overcome the fragmentation so prevalent in much of modern thought and life. From the hermetic point of view, the methods for realizing the complementary processes of *solve* (analysis, separation) and *coagula* (synthesis) were not the same. Overlooking this distinction would be an example of the "collective disease" of consciousness diagnosed by Kühlewind and Bortoft.

For Khunrath and his contemporaries the path of knowledge referred to as "the Art" encompassed the study of natural phenomena—what we might now refer to as "science"—as well as contemplative practice in the pursuit of knowledge. Significantly, the Art also referred to the development, practice, and refinement not only of techniques in the laboratory, but of the inner life of the individual on the path of knowledge. The art of human development was inseparable from the acquisition of knowledge and experience. I will return to this theme later.

Implications

Modes of consciousness and implications for education

It is widely recognized that the separation or distinction between science, art, and religion (the spiritual life) is a recent event in the history of culture and consciousness. This separation accompanied the development of rational thinking. It is not at all insignificant that this rise of rationalism brought about a concurrent demise of the hermetic Art, although individuals at the time of transition were often engaged with both ways of knowing (Newton, for instance).[16] That the rational, analytical way of knowing has become ever more prevalent as the shaper of both individual and society is not a result of any inherent superiority to other ways of knowing, but is due more to the pride of place it is given in our social institutions and activities. (Bortoft, 1996, p. 31) It is also, as described by Kühlewind, a product of developments in consciousness that have occurred over time, shaping both individual and collective ways of knowing. Bortoft writes:

> It is the contemplative method and practice which places our work on an ethical ground.

> There is now a growing body of evidence to support the view that there are two major modes of human consciousness which are complementary. In our technical-scientific culture we have specialized in the development of only one of these modes, to which our educational system is geared almost exclusively. This is the analytical mode of consciousness, which develops in conjunction with our experience of perceiving and manipulating solid bodies. (1996, p. 61)

Bortoft calls this mode of consciousness "the verbal-intellectual mode," given its predilection for reading, writing, and the spoken word. There is, however, a growing concern amongst some scientists, teachers, parents, and policy makers about the primacy given to the analytical mode of consciousness. Speaking from an acute awareness of the current issues faced by business, leadership, and social innovators globally, Sir Kenneth Robinson, author of *All Our Futures: Creativity, Culture, and Education* (The Robinson Report, 1999) perceives the root of this crisis as arising in the realm of education. He perceives the crisis as originating in a one-sided attention to the cultivation of the intellect. In his hugely popular and widely viewed TED talks, Robinson makes the following statement regarding education:

> We have what is essentially an industrial model of education, a manufacturing model, which is based on linearity, and conformity, and batching people. This falls in with a general tendency to focus on critical thinking and outcomes-based learning and to impose standardized testing at an increasingly young age. The computational theory of mind finds no room for the intelligences of the imagination, community, and spirituality. (Robinson, 2006)

Now, I am not proposing an outright critique of the verbal-intellectual mind and method, neither in science, education, nor in other arenas of social activity. This way of knowing and the methods that derive from its development have inarguably contributed to aspects of our knowledge and understanding. What I wish to emphasize is that a critical review of this mode of consciousness—as undertaken by Robinson in the context of education, by Bortoft in the context of science, and by Kühlewind in the context of general psychological health and well being—serves to highlight the imbalances that arise if this mode of consciousness does not also find its complement. That such a complementary mode exists in the domain of science, for instance, is explored in some detail in *The Wholeness of Nature*. In this very accessible study, Bortoft presents clear descriptions and arguments for a deeper understanding and engagement with the method of "exact sensorial imagination" that informed so much of Goethe's research. In the realm of education, as a consequence of the issues articulated by Robinson in his talks and publications, new educational initiatives and research groups are taking on the challenge to rethink overall approaches to teaching and learning. For several of these, it is also the imagination that is gaining focus and attention.

> Knowledge or knowing cannot, without serious implications, be a purely intellectual or analytical activity.

Ways of Knowing: Towards Imagination

An example of such an initiative is the Imaginative Education Research Group, based in British Columbia, which has held several

annual conferences with an international group of contributors and a focus on the role of the imagination in education. Groups such as the Imaginative Education Research Group (IERG)[17] take references to imagination as a form of intelligence (Robinson, 2006) very seriously. For the contributors to this research group, "engaging students' imaginations in learning and teachers' imaginations in teaching seems to us crucial to making knowledge in the curriculum vivid and meaningful to students." (IERG, 2009) Numerous papers given at IERG conferences on the theme of imagination and education are available on their website. The significance of initiatives such as the IERG and the work of Sir Ken Robinson for this present discussion is that by focusing their attention on the role of the imagination in education, a direct engagement with a mode of consciousness complementary to the verbal-intellectual mode is cultivated. It is a mode that can allow meaningful synthesis to emerge out of the products of the analytical mind. This new synthesis is different from the verbal-intellectual approach in that it arises from a fundamentally different mode of consciousness. It is, as Goethe demonstrated in his work, suited to gaining insight into the realms of life and dynamic relatedness, whereas the intellect has excelled in revealing the laws of the inorganic. Bortoft, referring to it as the "holistic mode," describes it as follows:

> This mode is nonlinear, simultaneous, intuitive instead of verbal-intellectual, and concerned more with relationships than with the discrete elements that are related. It is important to realize that this mode of consciousness is a way of seeing, and as such it can only be experienced in its own terms. In particular, it cannot be understood by the verbal-intellectual mind because this functions in the analytical mode of consciousness, for which it is not possible to appreciate adequately what

Plate from Heinrich Khunrath's Ampitheatrum *sapientiae aeternae*

We can awake … through constant prayer in the oratorium (left),and through the laboratorium (right) which rests on the two pillars of experience and reason. The oven in the foreground admonishes us to patience, and the gifts on the table remind us that sacred music and harmony are supposed to accompanty and define the Work. – Roob, 2001, p. 331

> it means to say that a relationship can be experienced as something real in itself. In the analytical mode of consciousness it is the elements which are related that stand out in experience, compared with which the relationship is but a shadowy abstraction. The experience of relationship as such is only possible through a transformation from a piecemeal way of thought to a simultaneous perception of the whole. Such a transformation amounts to a restructuring of consciousness itself. (1996, p. 63)

Whereas, as previously stated, the separation of science, art, and religion (the spiritual life) arose along with the development of rational thinking, the cultivation and education of the imagination provide a way of knowing whose core mode is synthesis and not analysis. Whereas the verbal-intellectual mind is suited to perceiving and manipulating solid bodies, the holistic mind, through the cultivation of the imagination, can begin to engage the dynamic, meaningful relationships inherent in the realms of life.

The Art of Knowing

I entitled this paper "The Art of Knowing" precisely to support the view that knowledge or knowing cannot, without serious implications, be a purely intellectual or analytical activity. When the medieval alchemists referred to their science/art/contemplative work under the one term The Art, they were alluding to this fact. Imagination was central to the hermetic way of knowing, and the tendency to depict both method and findings in often complex and ambiguous images attests to the imaginative nature of their way of knowing. In time, through the development of rational, analytical thinking and the separation of science, art, and the spiritual life, the term "Art" no longer applied to a way of knowing which encompassed all three disciplines. Imagination gradually became associated with "fantastical" or "made-up" and personal interpretations of the external world, or was seen as being a product of the strictly subjective consciousness. Because of these connotations, the imagination was not seen as being suited to obtaining true and factual knowledge. That this restricted view of imagination is changing is evident in recent dialogues opening up between disciplines that from the early years of the Scientific Revolution refused to have anything to do with one another.[18]

Once imagination begins to be acknowledged as a way of knowing, it can offer an alternative approach to many of the challenges outlined in the first section of this article. Imaginative cognition can bring into a meaningful relationship the insights gained from the disciplines of science, art, and the contemplative life. This synthetic potential is exemplified by the Romantic poets—Goethe, Novalis, and Coleridge are but a few examples—who saw a "spontaneous, sober observation of the world" (Allison, 2003, p. 14) as essential to their work. These poets were often very deeply engaged in the study of natural phenomena—Novalis in mineralogy, for instance, and Goethe in botany and color phenomena. Their deep investment in the sense life and in phenomena as revealed to the unmediated senses is a very opposite gesture to the demotion of direct experience articulated by Brady in his encounter with the science of his time.

The development of imaginative cognition requires a heightening of perceptual capacity, "plunging into perception." (Bortoft, 1996, p. 64) Along with intensified perception through an investment of attention in our sense life, the development of imagination also re-orients awareness toward the superconscious pole of consciousness. (Kühlewind, 1988) This

for Kühlewind is the basis for the pathway from normal consciousness (which he also classes as subject to the collective disease of consciousness, or cognitive amnesia) to healthy consciousness. It places the awareness back in touch with the living, dynamic source and seat of consciousness and loosens the rigidity of the subject-object separation, which arises due to the gradual orientation to and identification of consciousness with the products of its activity.

For educators, granting the intelligence of the imagination equal consideration ensures that teachers and learners become skilled in both analytical and holistic ways of knowing. Knowing, in this sense, becomes an Art that honors the rigor and accuracy demanded by science, in the modern sense of this term, while preserving the integrity of individual aesthetic expression championed by the arts. A way of knowing that embraces both the analytical prowess of the intellectual mind and the dynamic vitality of the imaginative intelligence ensures that our way of knowing stays in touch with the realms of life, and in so doing informs a way of living adequate to Nature and the Human Being.

Endnotes

1. Quoted by Zajonc (2006, p. 3).
2. It is not the intention to go into these in detail in the body of this paper. We need only consider the many themes that dominate the headlines in our current culture of reporting: pollution, political turmoil, climate change, peak oil and its implications, genetic modification of living beings, hunger, and so forth.
3. It is the authority of science that is called upon in contemporary political discourse or decision making, no longer the authority of the church and certainly not the authority born of self or collective epistemological reflection.
4. The distinction made here refers to Palmer. It contrasts the treatment of ethics as an autonomous, specialist discipline or consideration that is optionally brought to bear on our knowing activity with the realization that the activity of knowing—and what results from that activity as action or insight—is essentially ethical in its implications.
5. See Lehrs (1985) for a further elaboration of this term. It refers to the resulting mind-set that the scientist adopts if rigidly following the tenets of a science based on the removal of the subject (the subjective) in the attempt to obtain objective, universally applicable knowledge of the world.
6. Galileo's thinking, and its subsequent influence on modern science, is complex. E.A. Burt gives a thorough description of Galileo's view that "nature is the domain of mathematics" (Burt, 2003), which is an essentially epistemological statement. Galileo, in this light, is one of several influential thinkers whose science derives from a philosophical stance we could call mathematism.
7. I think it important to reference Galileo in this manner. Rather than to say "since Galileo" I have chosen "since the time of Galileo" to indicate the possibility that Galileo was one proponent of a shift in consciousness that was, on all levels—physiologically, psychologically, and spiritually—giving human subjects greater awareness of themselves as separate cognizing beings, centered within their own individual points of view. This idea references the research of Rudolf Steiner and the substantial evidence for the evolution of consciousness articulated in his own work as well as in the work of Ernst Lehrs, Owen Barfield, and others. The choice of wording indicates that although the shift in consciousness is a supra-personal event, Galileo is one of the earliest and clearest proponents of modes of thinking arising from this new experience of self and world — with profound implications. Burt writes: "The form of the primary-secondary doctrine in Galileo is worth a moment's pause, for its effects in modern thought have been of incalculable importance. It is a fundamental step toward that banishing of man from the great world of nature and his treatment as an effect of what happens in the latter!" (2003, p. 89)
8. The role of what Bortoft refers to as the organizing idea in cognitive perception has also been revealed through the work of Von Senden, Oliver Sacks, and others. These studies, which focused on the experience of individuals who were blinded from birth but whose sight was eventually restored through medical science, are relevant to mention. Annie Dillard makes reference to Von Senden's research *Space and Sight* when she writes that for the newly sighted vision is "pure sensation unencumbered by meaning." (Dillard, 1974)
9. The term "split" is used here to refer to the separation of perception into primary and secondary qualities, the separation of thinking and perceiving and the development of the subject/object consciousness.

"The world is … a non-dual world that we split—or is split by our "ego" or "me" consciousness—into subject-object, self-other, friend-enemy, humanity-nature, and so on." (Kühlewind, 2008, p.11)

10. Kühlewind's statement—"People live in the same way they cognize [!] consciously or unconsciously, they always shape their world according to how they know it. Cognition creates reality in this way and, as far as it is creative cognition, it makes morality possible" (1988, p.152)—resounds strongly with the conclusions of both Palmer and Bortoft.
11. We refer to the Human Being, and in earlier times Nature itself was perceived as being populated by beings, whose works were the phenomena of nature perceived by our senses. As a result of the quantitative way of seeing (Bortoft), nature is no longer understood to be peopled by beings but is the manifestation of forces and physical processes lying beneath their manifestation to our senses. The Human Being has also largely disappeared from view and is at best an epiphenomenon of genetics and complex biological processes.
12. Reference to Shakespeare's *Hamlet* Act 3, sc. 1: "And thus the native hue of resolution/Is sicklied o'er with the pale cast of thought,/And enterprises of great pith and moment/With this regard their currents turn awry,/And lose the name of action."
13. The alchemical mantra *ora, lege, lege, lege, relege, et labora* is often quoted, notably with *ora* preceding either of the other two endeavors.
14. Goethe is a clear example of a scientist/artist who made significant contributions to both fields of human endeavor but who is generally credited and respected either for his artistic works or his scientific method, but rarely for both.
15. "Surely, science has brought enormous advances, but we cannot turn away from the central fact that the modern emphasis on objectification predisposes us to an instrumental and manipulative way of being in the world." (Zajonc, 2008, p. 3)
16. "It used to be an embarrassment that this person (Newton), who above all others set the seal on the future development of science in the West, in fact spent more of his time on occult researches and alchemy than he ever did on experimental and mathematical physics." (Bortoft, 1996, p. 30)
17. See http://www.ierg.net/about.
18. A conference held in Herefordshire in the UK in 2010 titled "Ways of Knowing: Art and Sciences Shared Imagination. Perspectives from the Sciences, Humanities and Creative Arts" attests to this emerging dialogue in the halls of higher education and research.

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