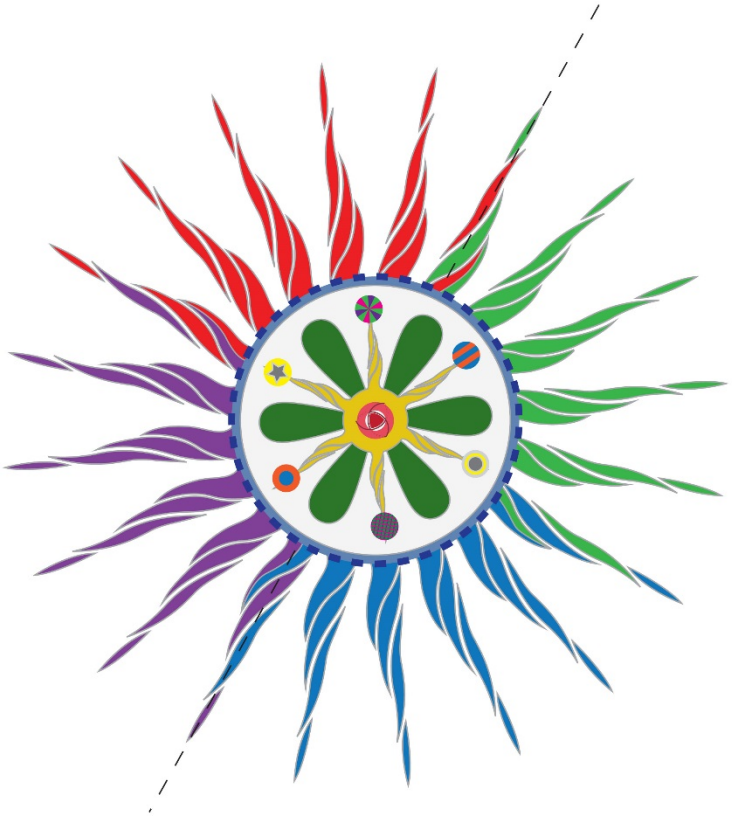
Dialectic thinking…

means thinking of things not in their fixity, but rather in their mutual relations of dependency, in their ***development***. A process of thought by which contradictions, opposites, are seen to merge themselves in a unifying principle that comprehends them. Two different entities – mutually interactive reciprocities – emanating from a single generative principle to attain a coherent whole. A whole, where argument is the quantifiable aspect and counter-argument is the qualifiable aspect.

An effective grouping strategy for collaborative, interactive learning

(Applying Naturalist Intelligence)



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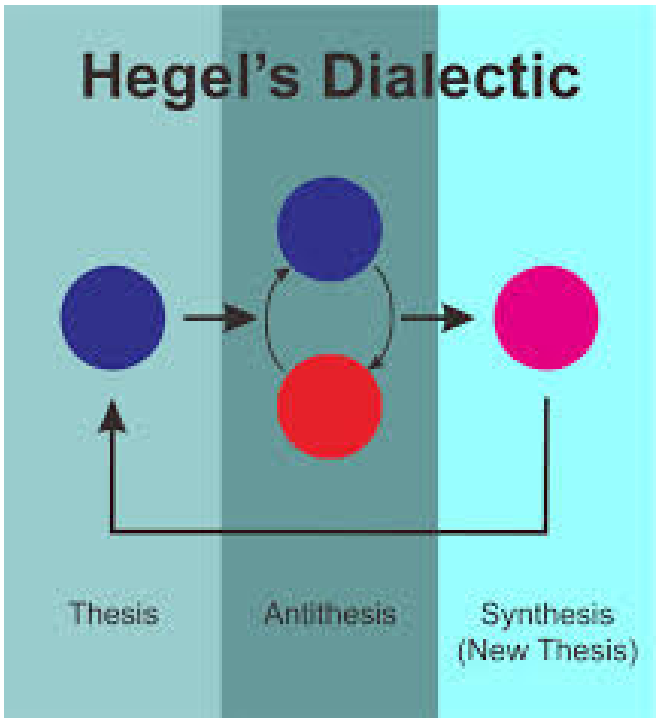
Dialectics may be characterized as the science which concerns general relations of things in nature, history and in thought. Dialectics considers all things in their most general relations, in their mutual relations of ***dependency***, in their ***development***. (1)



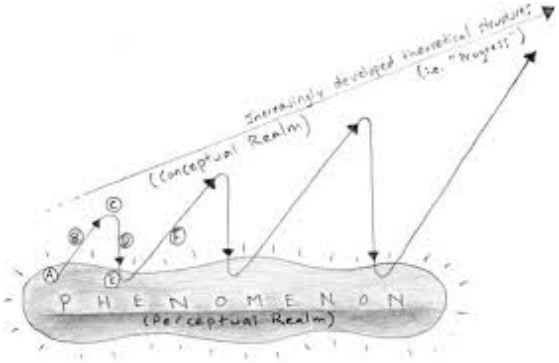
The opposite of dialectics is the ***isolated*** consideration of things, and the consideration of things in their ***fixity***.

In relation to learning and thinking, a dialectic perspective also happens to be consonant with one of the eight eligibility criteria supporting Howard Gardner's Multiple Intelligences theory - history and plausibility. He advocates that in order for an Intelligence to qualify to the list of Intelligences he compiled, there must be evidence for it in prehistoric life of humanity, even in earlier phases of evolution before civilizations sent roots into the nucleus of living systems.

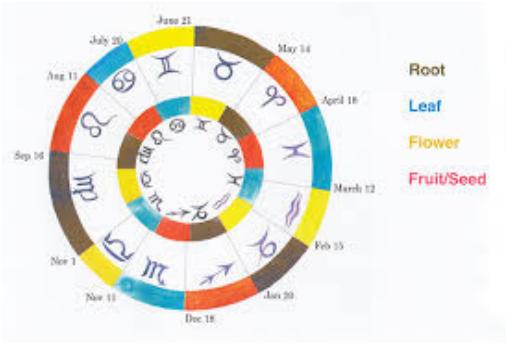
In clarification, it is appropriate to first examine and explain Richard Roest's interpretation of Howard Gardner's Multiple Intelligences theory as featured in the former's Master of Arts in TESOL thesis.

How the Individual is Intelligent - how the individual is knowing - is portrayed as **Essential Learning Styles / Learning Style Dimensions** and are adaptations of Howard Gardner's theory. *How the Individual is Intelligent / How the Individual is Intellectually Functional* are at the centre of Richard Roest's ***A* School Tutorial/Mentorship Programme**, a multi-faceted imagery concept in dialectic unity. The concept reflects a real and vital example of dialectic thinking in application.

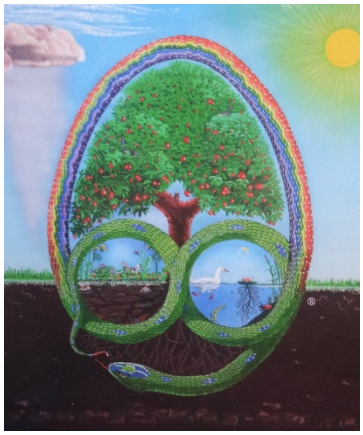
The interpretation is inspired by phenomena in our natural world – applying Naturalist intelligence - and the insights of Johann W. von Goethe, Rudolf Steiner's Bio-dynamics, Bill Mollison's Permaculture Keyhole Garden concept, the thinking of Georg Hegel, August Thalheimer, and Viktor Schauberger's theories of Mutually Interactive Reciprocities.
With creativity in mind, one may reach some intuit in interpreting forms and creations of Nature, so to connect the ideas that properly belong to the phenomena, according to the philosophy of Goethean Methodologies and Bio-dynamics.
The latter is explained as a science of life-forces, a recognition of basic principles at work in Nature. It integrates precise observation of natural phenomena, an approach which takes into account clear thinking, and knowledge of Matter and Spirit. It brings about in a real way an ongoing path of knowledge, rather than focus on assembly of methods and techniques alone. The system of Bio-dynamics is harmonious with the framework of Permaculture design principles.



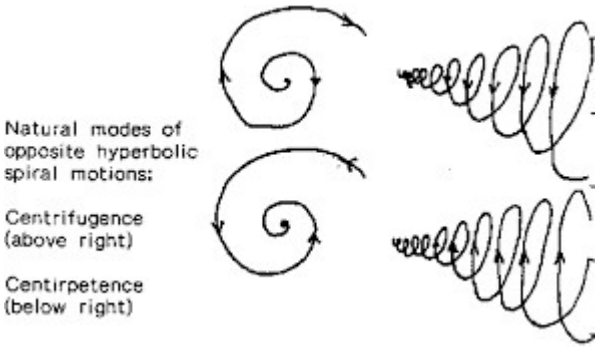
Goethean Methodology



Rudolf Steiner's Bio-dynamics



Bill Mollison's Permaculture



Victor Schauberger's theories

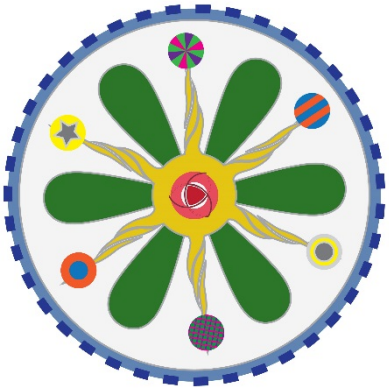
Bio-dynamics is rooted in Goethean Science (2); both schools of thought hold the view that every empirical object or situation is ***incomplete***, ***that is only half there***, ***and that it should be completed by its other half***, ***by the idea proper to it***.
One should, in observing, not merely consider an external world available to one's senses but also the internal world of ideas in order to enable one to grasp the totality of the phenomenon.
Every empirical thing or situation has its ideational aspect which may be perceived by the human mind as the inner form, another way of knowing the world through awareness as a by-product of brain and body processes. Awareness of how people perceive, how they interpret and direct their attention and intentions toward each other and their surroundings - in this paper, a three-component imagery instrument showing How the Individual is Intelligent / How the Individual is Intellectually Functional.
Whereas external perception may describe and part explain natural phenomena, internal perception gives one wider connections and underlying ideas.
Applying the internal world of ideas and wider connections to, for instance, a Practitioner trying to 'energise' and teach a classroom of students, one is inclined to believe that in the classroom too, only half the solution is evident…
'The other half', collective-learner-dynamics - interactive learner engagement for learning refinement - is usually not in evidence. **It would seem that an important aspect to learning *and* teaching has been overlooked.**

Goethean Methodology differs from the conventional Scientific Approach; the latter tends to separate matter into the external, real and objective. It holds that the internal world of concepts, thought, and symbols are merely arbitrary and subjective.
In contrast, Goethean Methodology views the Scientific Approach hypotheses as subjective and of diminished value. It holds that the proper idea belonging to a phenomenon is 'objective', as is the phenomenon itself. Goethean methodology holds that the correct idea is not normally derived from hypothesizing or postulating only, but is derived by staying with the phenomenon – seeing it in one light, then in another – continually observing the 'coincidental' aspects that make up the whole. It holds that the mind can then make the proper connections without necessarily straying into fantasy. Eventually, concepts will materialize to satisfy the mind's need for explanation, according to Wolf Storl. (3)

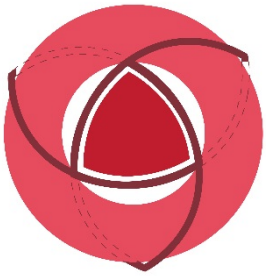
In regard to **Essential Learning Styles** and **Learning Style Dimensions**, all humans possess at least eight relatively autonomous cognitive abilities, each as a separate intelligence, but connected. People differ in profile as to how they are intelligent and this holds significant consequences for learning, teaching and learner pathways. In relation to the second part of Howard Gardner's threefold cornerstone search for making a case in support of his Multiple Intelligence theory, he suggests that it should be possible to draw up an

individual's intellectual profile - proclivities – and draw upon this knowledge to enhance the person's educational opportunities. (4) The intellectual profile interpretation features **Essential Learning Styles** and **Learning Style Dimensions** configured as a Keyhole Circle Garden concept - Mandala garden - (5) with the positioning of Learning Style Dimensions – the learner defining elements - in a Polar-Unity arrangement, as 'Opposites'. Two discrete entities emanating from a single generative principle to attain a cohesive whole – a "balanced-imbalance", as in Nature.

Permaculture Keyhole Circle Gardens



Learning Style Dimensions

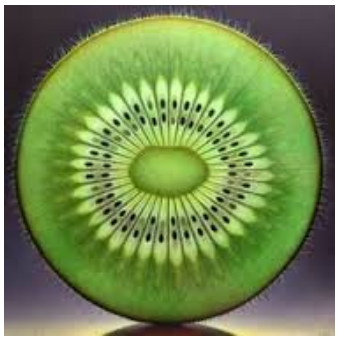


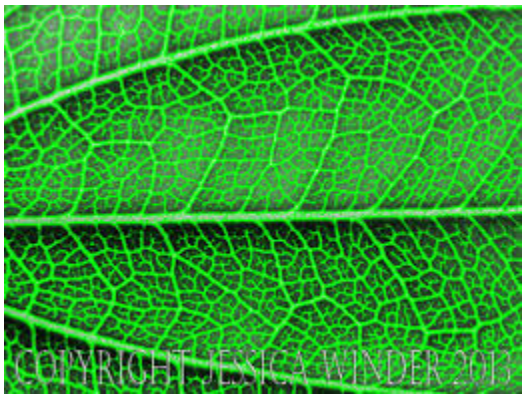
Essential Learning Styles

Keyhole Circle Gardens are found in Taiwan and the Philippines, where these intensively planted gardens are planned to feed a family of five all year round. The design owes much to the work of East-West Institute of Hawaii and the Samaka Gardens of the Philippines, but the layout is distinctly Permaculture. It embraces the concepts of Nature patterns and Guilds, and in design represents a 'least-path' layout to give a succinct and productive model of a sustenance garden. It relies on companion planting, edge cropping theory – ecotones, an overlapping of mediums for greater soil life activity – for an enhanced yield. At the centre of a hundred square metre garden area, lies a circle garden of approximately two/three metres across with a depth of some three/four feet from hollow

to rim. This circle garden usually contains bananas, sweet potato and papaya irrigated by all household wastewater. For the purposes of this writing, the inner circle garden features the Essential Learning Styles – Visual, Audio, Kinesthetic – all relatively autonomous, but connected as **One**.

Patterns in Nature

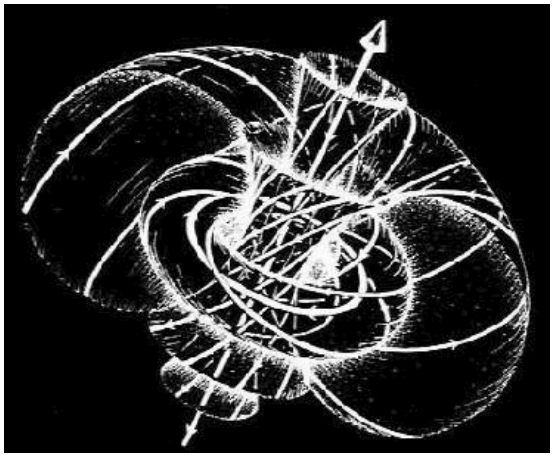
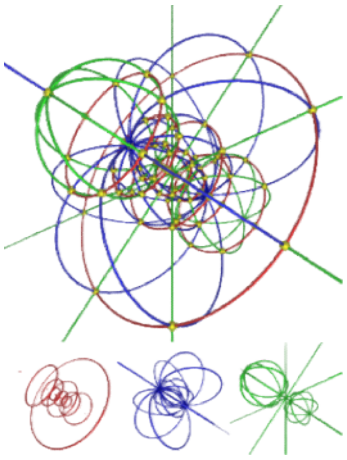


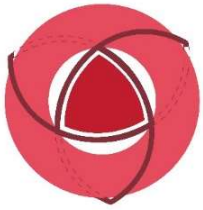



The Learning Style Dimensions – Social, Logical-Mathematical, Psychological-Physical – three dimensions, six elements in all, are located at the keyhole path ends, with the eighth intelligence – Naturalist Intelligence – portrayed as a large green coloured "asterisk" in the background, and Existential Intelligence featured as a blue interrupted circle surrounding the Keyhole Circle Garden image. The surrounding circle represents the permaculture keyhole Circle garden hedge-row concept, normally made up of pigeon-pea, cassava, crotalaria, papaya, bamboo as a barrier to resist invasive grasses and feral animals.

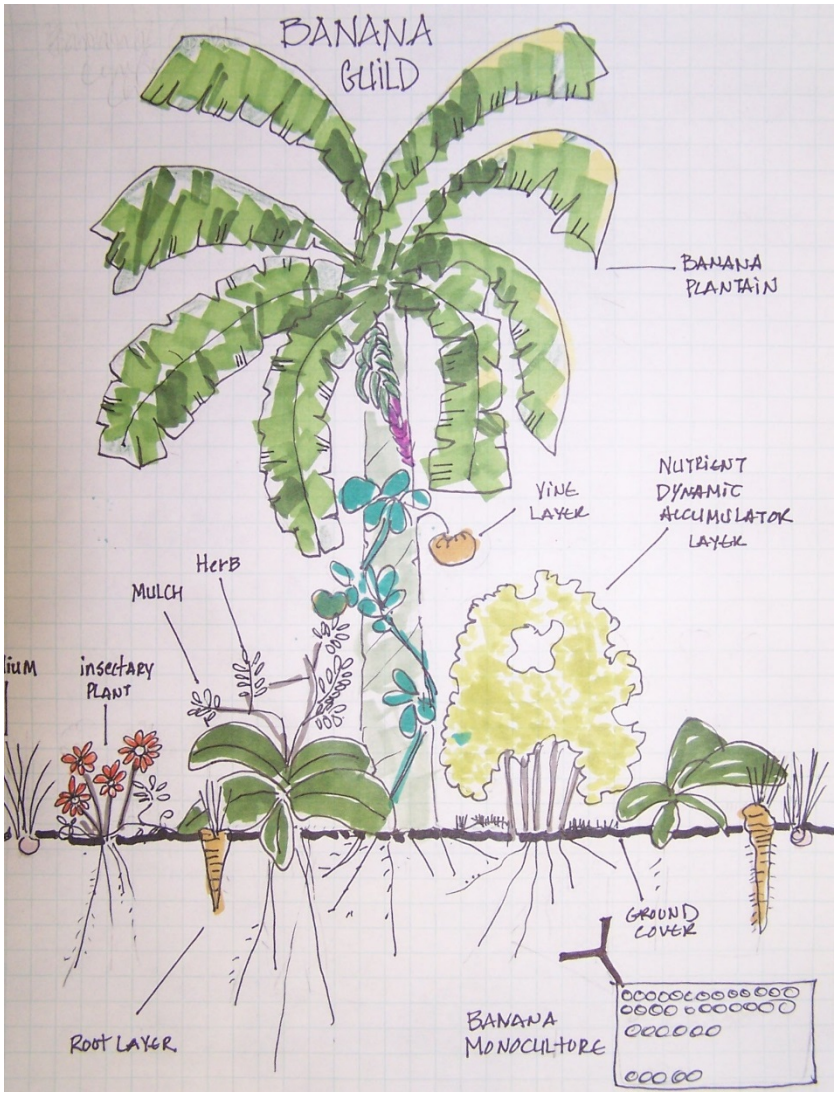


All learners possess the Essential Learning Styles, unless an individual is sight, hearing, or physically impaired, when the remaining styles and proclivities tend to compensate for the handicap. It is important that all three be developed to the maximum – particularly eye and ear – vision and sound respectively – as they are the foundation elements in the development of personal performance potential. Essential Learning Styles are relatively autonomous – this image is mirrored on the DNA signature in the Robinson congruence. (6)

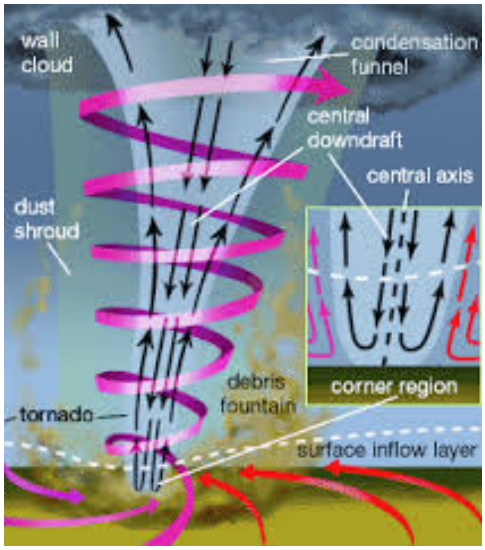





In relation to the Learning Style Dimensions, pair-mix is important in order to gauge and connect motivation with interests for the purposes of learners reaching their goals.
The arrangement of pairing learners, opposites in each of the three dimensions, is likely to complement and contrast potentials, is likely to differentiate individual focus and orientation in terms of direct or indirect involvement, working with or working through others to achieve goals.
In this regard, one may recognize similar and parallel lines between different ways of learning and personality traits, looking closely. Provision, however, must be made to cater for the individual in the group who may be overbearing, who finds difficulty in maintaining a 'neutrality pact' and who may need to be replaced in the group, or be paired with another learner of similar fervor. This mix-and-match skill is not infrequently applied in finding the most suitable guild of plants, particularly in relation to Natural Pest Control by inter-planting herbs. Some herbs may prove too strong, or may be antagonistic to productive plants nearby, within the guild.



The six different/opposite elements provide the practitioner with scope for effective mixing, as well as being able to draw on those learners who show creativeness in any one of the eight proclivities for a different perspective on tasks set.
The Learning Style Dimensions ***define*** the learner; learners paired within a group of six positioned in such arrangement tend to produce a synergy, a collective process of thought and negations, by which contradictions are seen to positively merge themselves in a higher truth that comprehends them, according to Georg Hegel. (7) This phenomenon, the foundational dialectic proposition, is explained by appraising the elements of argument, counter-argument, and unity in the dynamics of a tornado according to Viktor Schauberger.



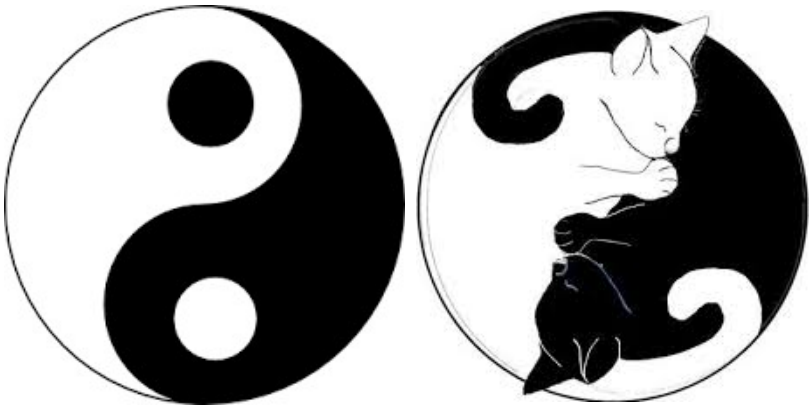
The tornado descends from a lower to a higher atmosphere density and normally takes the form of a hyperbolic funnel. The smaller the radius, the higher the rotational velocity – radial, axial motion, moving from the outside inwards. (8) In the eye of the tornado there is an upward movement, suction. Suction and pressure are the two forces interacting in this analogy, each being the counterpart of the other and taken together represent the undivided phenomenon.
Dialectic thinking refers to the process of thought by which contradictions are seen to merge themselves into a unifying principle that comprehends them. There are numerous examples of reciprocities, in which – generally – **argument** is the ***quantifiable*** aspect and **counter-argument** the ***qualifiable*** aspect. Both are represented in the equation by mathematician Walter Schauberger:

$$1/n \times n = 1$$

1/n stands for the **quantitative** component, and **n** for the **qualitative** component; n itself, is equal to any integer from naught to infinity. The answer is *always* **One**.

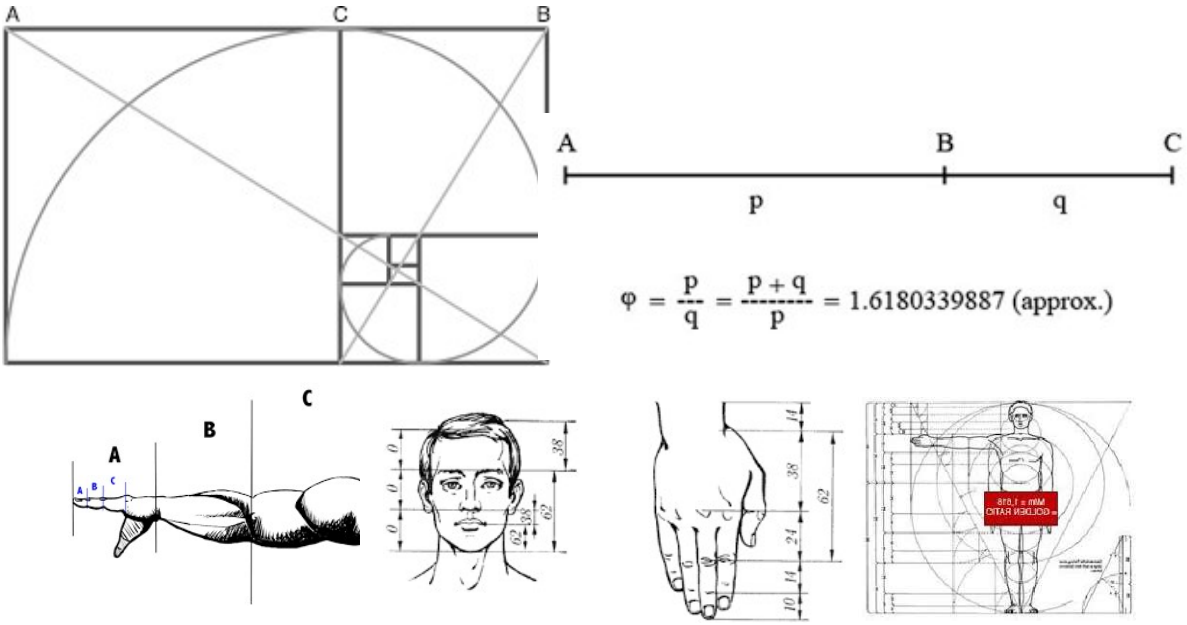
Perhaps mankind should consider putting greater score on the *qualitative* aspect, rather than quantitative – the former is the differentiator and animator of life, ***'new beginnings'***…

Viktor Schauberger estimated the correct proportion between argument and counter-argument to be 1/3rd and 2/3rds. The Chinese also consider an unequal relation to be most propitious for the harmonious unfoldment of life, their ratio being 2/5ths to Yin and 3/5ths to Yang – Nature's ***"balanced imbalance"*** explained, yet Yin and Yang are invariably portrayed as being equal…



The proportion of **1 : Phi** is probably the most correct – Phi is a manifestation in so many of Nature's creations – Golden Section –

'Transcendental' No. ratio - 1 : 1.618033988



<u>Example of Phi in Nature's creations</u> - <u>the human body</u>

The transcendental number describes the circumference of the circle and the Phi proportion of slightly more than 1:16/10 lies between the two ratios of 2/5ths and 3/5ths at (1:1.5) and 1/3 : 2/3 = (1:2).

Pivoting weighing scale and weights

Using weights and a pivoting weighing scale, probably best shows these relative magnitudes.

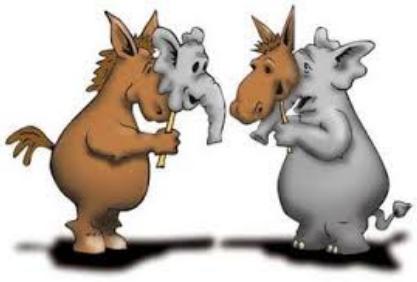
A 1 kg weight B (Thesis) and weight A of 1.618033988 (Anti-thesis) The Anti-thesis weight is at a distance of 1/Phi x m, or 0.618033988 cm from the pivot of the scale, whereas the other is 1 m distant.

Weight B exerts a moment about the pivot calculated as 1 x 1m = 1kg/m. Weight A exerts the same moment – 1.618033988 kg x 0.618033988m = 1kg/m. The seesaw of life is in a state of 'balance', even though the absolute force of one magnitude is greater than the other.

The resultant downward force is the sum of these two weights and equals 2.618033988kg, which equals Phi squared.

Through the interaction of two proportions, the unstable dynamic balance, the "balanced-imbalance" in Nature and her energetic processes is achieved. Were it not for this tentative balance, no forward progress is possible, according to Viktor Schauberger. (9)

It should be noted, that it is the second main proposition of dialectics – the principle **Negation of Negation** – that constitutes the ***Principle of Development*** through ***Opposites***.



Dialectics itself has undergone dialectical development; Heraclitus represented the first stage – **'One-*after*-the-Other'** – Plato and Aristotle represented the second stage – **'One-*beside*-the-Other'**, the latter in opposition to the dialectics of the first stage, being its *negation*.
Hegel represents the third stage.
His *first* source was the embracing of natural processes, the *second* source was the observation of human history, of changes that occur from one historical period to another and the ideologies associated with them, the *third* source was an examination of ***human thought*** itself.

What proof is there to be found that the principles of dialectic thinking are in accord with the principles of reality?

Are they in keeping with the change in Nature?

Correlation to these questions is not difficult to find, since man is part of Nature, and human thought is in the last analysis a natural process, the same kind as any other process in Nature – ***any other notion would be inconceivable, would it not?***

The most general and the most inclusive fundamental principle of dialectics from which all others are deducted, is the principle of **Permeation of Opposites**. This principle has a two-fold meaning; first, that **all** things, **all** processes, **all** concepts merge in the last analysis into *unity*. Second, and just as valid, **all** things are at the same time *different* and *opposed*. This principle may also be referred to as the Principle of Opposites and *applies to everything*, to every single phenomenon, and to the world as a whole, including humans. (10)

In relation to thought – thinking - it may be put this way; on the one hand the human mind is capable of infinite condensation of things into unities – even the sharpest contradictions – on the other hand it is capable of infinite differentiations and analyses of things into opposites. The human mind can establish this unlimited unity and differentiation because they are ***present in reality.*** If one takes night and day as an example, there is the twelve-hour day and the twelve-hour night, a period of light and a period of darkness.
Day and night are opposites – they are mutually exclusive. This, however, does not prevent their being, *at the same time*, parts of a twentyfour-hour day.
Where only simple objects of direct perception are concerned - where social interests are not involved, for example – the conception which asserts the identity of opposites will usually meet with no difficulties, but there are exceptions.
Obstacles to this conception present themselves when social interests oppose it, or when it is no longer a question of ideas - the question of *social distinction*, by some people, between white, black and coloured people, for instance. To comprehend that these are not absolute opposites, but that they are united in the concept of mankind shared equally by white, black and coloured requires not only a dialectically trained mind, but also a definite social viewpoint, as esposed in educational philosophy orientation of Progressivism and Social-Reconstructionism.
The untrained mind, therefore, may be confronted with peculiar difficulties when general concepts are in question; conception difficulties are likely to increase as more abstract, opposing-interest concepts become further removed from sense-perception.
It is more difficult with opposites such as True/False, for example, and still more difficult with concepts such as Being/Non-being, which are perhaps the most general of all, yet the most inclusive, but in the poorest in content.
One could argue, how is it possible to *unite* such absolute opposites as being and non-being? Either a thing is, or is not, as conventioanal reasoning would dictate. Surely, there cannot be common ground between them, or is that common conception too trapped in consideration of things in their 'fixity', a conception the very opposite of dialectics?
The following example may answer this question: **A boy developing into a man is a child and at the same time not a boy any longer.**

So far as the individual is becoming a man, the individual ceases to be a boy. But, he is not yet a man, because he has not yet developed into a man. The concept of 'becoming' contains concepts of 'being' and 'non-being' and in this example they permeate each other. (11)

The obverse side of the coin, another aspect of the proposition of permeation of Opposites – There are no opposites which cannot be united, no opposites between which there is no identity, whilst at the same time there are no things between which there is not some difference, some opposition – e.g. the opposition of things is just as unlimited as their identity. It is in the nature of things, as well as in the nature of the mind that no two things exist which do not differ.

The capacity of the mind to infinitely equate things as well as differentiate and oppose, corresponds to the infinite identity and the difference of things in Nature.

Therefore, the principle of Permeation of Opposites may be deducted from the examination of thought itself. In thought this principle is inherent in the basis of consciousness, and this basis consists in the fact that one knows that one is part of the Universe – our Natural World – a part of being, and on the other hand, in the fact that one knows oneself to be distinct from the external world, distinct from others.
The structure of thought is, from the very beginning, a Polar Unity of Opposites.
From this all other principles of thought are derived and *corresponds* to the nature of **all things**.

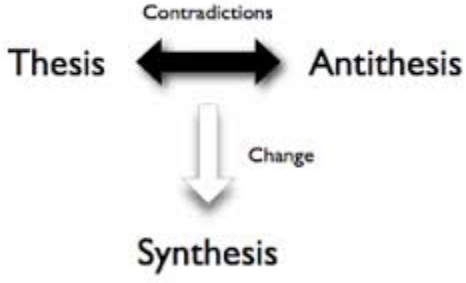
Polar-Unity-of-Opposites

This principle applies to all motion and changes of entities; to real entities. As well as those in one's mind – e.g. imagery and mental concepts. It states that entities and concepts move, change and develop. All fixity of individual entities is merely **relative** and **limited,** because therein their motion, change, or development potential is **unlimited.**

The Principle **Negation of Negation** has a sense beyond the mere proposition that all entities are processes; they involve **change** and also state something about the most general form of these changes, motions, developments. **ALL** the aforementioned factors take place through Opposites – contradictions – or through the negation of an identity. Conceptually, the actual movement of entities appears as a negation, which represents the

most general way change, development is imaged in the mind. This is only the first stage of this process.

The negation of a thing from which the change proceeds is in turn subject to the Principle of **Transformation** of things into their opposites. The negation is itself negated and thus the reference 'Negation of Negation'.
This phenomenon logically results in something positive, in thought – thinking – as well as in reality. Negation and affirmation are polar concepts. Negation of affirmation results in negation, whereas negation of negation equals affirmation. E.g. if one negates YES, the outcome is NO – the first of the negation. If one negates NO, the outcome is YES – the second negation. The result is something **positive**.



Even in everyday speech, an affirmation results from a double nagation; however – and this is the definitive aspect – the old and the original are not re-established by the double negation in dialectics. It is ***not*** a matter of simply a return to a starting point, but of something **new** arising. The identity, or the condition with which the process started is re-established on a ***higher plane***. It is through the process of double negation that new qualities and new forms emerge, forms in which the original qualities are not only retained, but **enhanced**.

A new form, but enhanced – no?

To understand this principle of Negation of Negation correctly, one must guard against two misinterpretations. Thesis and antithesis are dialectically united in the final proposition. The dialectical union must not be mistaken for the mere summation of those qualities of two opposite things which remain after mutually exclusive qualities are cancelled. Dialectic development does not occur in this way. This would constitute a mixture or effacement of opposites, a ***hindrance*** to dialectic development. It is a ***necessary*** characteristic of dialectical development that it fulfil itself ***through negations***.
In learning, negations are only possible through the recognition of active, engaged Affordances. An absence of an effective grouping strategy in Polar Unity of Opposite design, prescribed teaching methods and Practitioner-centred environments are not likely to provide openings for the phenomenon of Negation of Negation to occur.
It should be understood that without negation there is **NO PROCESS, NO DEVELOPMENT, NO EMERGENCE OF 'NEW'.**

There is only one kind of negation in which the thing negated has nothing more to do from which the development proceeded – this is complete negation or destruction, development forced beyond its limits, transformed into its opposite – into fixity – or lack of development. It should be understood that negation in the dialectic process in not absolute, is unconditioned, nor complete. It is relative, conditioned and is partial.
The first distortion of dialectics – the distortion that disregards negation – may be called the ***opportunistic distortion***. The second – in which the retention of the old in the new is disregarded – may be called the **anarchistic distortion.** These two opposed distortions are alike in that both put an end to development. The first because it puts an end to negation as the moving force of development, the second because it puts an end to the connection between opposites. The ***relationship*** between the first main proposition in dialectics – permeation of Opposites – and the second dialectic proposition – Negation of Negation – is permeation of opposites as ***a process in time and in sequence.*** It represents the general relations of things from the point of view of structure, whereas the second principle represents the relation of things as a process. These propositions are so related that they hold true *ad infinitum* – a process for everything at the same time and to the same extent. They permeate each other, they form a coherent whole.

The third main proposition of dialectics – the principle of **Transformation of quantity into quality and *vice versa*** – states that the mere augmentation of an entity or entities produces a change of quality, of characteristics and conversely, that a qualitative change produces a quantitative one.
To elucidate the relation between the third main proposition of dialectics and the first two, the substance of water is a clear example. Water has a definite temperature, an optimum health temperature at 4 degrees Celsius, and if the temperature is raised one will not achieve an ever hotter temperature of water, but instead, at a certain point steam will

occur. Likewise, if temperature is lowered, water does not become ever colder. At a certain point it becomes ice. It freezes because of the decreased quantity of molecular motion. Temperature is merely an expression of the motion of the smallest particles, the molecules. However, if one changes the molecular motion or the speed with which the molecules move about, the characteristics will change at certain points from gas to liquid, liquid to solid.
Conversely, ice can only be changed to water, or water to steam if the quantity of molecular motion is changed.
Another example of transformation is Formula 500 in Bio-dynamics. (12-17)

The relation of the third proposition to the first two is as aforementioned, and that the principle of Transformation of quantity into quality and *vice versa* merely represents a special application of the first proposition – the proposition of Permeation of Opposites.

Quality and quantity are polar opposites; quality is quantity analysed, and quantity is quality analysed. For instance, an apple, a pear and a plum all have different qualities and can only be counted together if their different qualities are abstracted from them or negated. One cannot add an apple, a pear and a plum together – one can only say 'three pieces of fruit'. In other words, negated quality is quantity and negated quantity is quality – these opposites are contained in each thing.

All things have – at the same time – quality and quantity. As opposites they permeate each other and are transformed into each other. Therefore, it is important to be conscious of the dialectical nature of things – in teaching and learning also.
It is not magic, neither is it part of anyone's natural equipment. This is a skill that must be practiced and learned by Practitioners and learners alike.
It should be realised that dialectics is in one's daily experience as well in one's own mind. In this respect human thought is exactly the same in all minds. (18)

There appears to be no agreement among philosophers and cultures about self-evident ideas in rationalism and often such ideas have been ignored.
It is clear that a dialectic perspective is elemental to learning and teaching, to human development.
Applying Naturalist intelligence, Bio-dynamic theory, Permaculture design concepts, and Goethean Epistemology, enable insights to problematic issues in the world today and may lead one to see beyond the perpetual blind spots of strict adherence to conventional scientific ways of knowing. Though sense experience may not be certain to those who subscribe to Rationalism, it can provide information which is reliable as needed – this writing a case in point. The fact that a belief is not absolutely certain should not disqualify it for knowledge.

Why not take the position that something is 'known'
as long as there is no good reason to doubt it?

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Literature Review – References

1	Introduction to Dialectical Materialism – Dr. A. Thalheimer, Covici Friede Publishers, NY, 1936.
2	Goethean Science – Schumacher College, Darlington, Devon, UK.
3	Culture and Horticulture; a Philosophy of Gardening – Dr. Wolf Storl, Biodynamic Literature, 1979.
4	Frames of Mind – Professor Howard Gardner, Basic Books, 1993.
5	Permaculture – Bill Mollison, Tagari Publications, 1988.
6	Permaculture – Bill Mollison, Tagari Publications, 1988.
7	German philosopher – Professor Georg W. F. Hegel (1770-1831).
8	Doctorate of Education: Minor Thesis 1 – Richard Roest, St. Clements University/ California University FCE, 2010.
9	Living Energies: Viktor Schauberger's Brilliant Work with Natural Energy Explained – Callum Coates, 1996.
10	http://www.marxists.org/archive/thalheimer/works/diamat/11.htm
11	Introduction to Dialectical Materialism – Dr. A. Thalheimer, Covici Friede Publishers, NY, 1936.
12	Dr. Rodney Blackhurst – Philosophy, La Trobe University, Melbourne, Aust.
13	Geiteswissenschaftliche Grundiagen zum Gedeihen der Landwirtschaft Verlag - Dr. R. Steiner, 1925.
14	Culture and Horticulture; a Philosophy of Gardening – Dr. Wolf Storl, Biodynamic Literature, 1979.
15	Dynamic Chemical Processes Underlying BD Horn Manure (500) Preparation, Bio-dynamics - Wim F. Brinton.
16	Culture and Horticulture; a Philosophy of Gardening – Dr. Wolf Storl, Biodynamic Literature, 1979.
17	Culture and Horticulture; a Philosophy of Gardening – Dr. Wolf Storl, Biodynamic Literature, 1979.
18	Introduction to Dialectical Materialism – Dr. A. Thalheimer, Covici Friede Publishers, NY, 1936.