Business Leadership for an Evolving Planet:
The Need for Transformational Thinking in Intercultural and International Environments

> Only those who continue to change remain my kin.
> J. W. Goethe

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Abstract
This paper discusses a new approach to leadership education based on studies in the development of adult thinking. The paper emphasizes the benefit of transformational thinking for creating cultures of collaboration, as well as the need for bridging the gap between Western and Asian thinking. In four parts, the paper situates management thinking historically and sets it in relief by outlining a historically well established type of thinking called *transformational thinking*. The history and structure of this type of thinking is reviewed, and the benefits of teaching and applying it in the business environment are outlined.

In the first part, the paper places management thinking in context of the present global economy. The second part briefly reviews the history of transformational thinking and comments on recent developments in management education. The third introduces the main aspects of transformational thinking and clarifies its foundations in dialectics, while the fourth part is centered on a case study highlighting benefits of transformational thinking.

Keywords: adult cognitive development, dialectics, intercultural differences, leadership, management thinking.

Part One: The Business Environment

The World We Live In
Today's business environment, at all levels from the local to the global, presents opportunities and challenges unknown just a few years ago. Increasingly, in order to take full advantage of those new opportunities and adequately meet the new challenges, we need to engage in a kind of thinking we are culturally not very used to. As followers of Aristotle who created formal logic around 300 B.C., we lack the common sense dialecticism of Asian cultures.

Dialecticism is a way of thinking that takes into account three 'principles' (Nisbett, 2005, 175 f):
- Principle of Change: Unceasing change is the rule, not the exception.
- Principle of Contradiction: Due to unceasing change, conflicts, oppositions, paradoxes, and anomalies are continuously created.

- - <u>Principle of Holism:</u> Nothing exists in an isolated or independent form but is connected to a multitude of different things.

All of these principles are anathema in formal logic of the Aristotelian kind. Even hypothetical or 'abductive' thinking finds them hard to accept. **This article focuses on how to learn and adopt dialecticism without letting go of formal logic.**

It is a truism that today's business environment is dynamic and fast-changing. What is more, this environment is radically interconnected in a myriad of ways: through people, organizations, ideas, communication, technology, materials and products, transportation, and countless others. These conditions create complexities that require a fundamental shift in how we approach and manage our work, and such a shift is contingent on how we think.

Thinking is based on mental models. We can say: "show me your model of the world, and I will tell how far as an adult you have progressed toward a dialectical (that is, holistic and systemic) grasp of the world." As the present financial crisis in the USA shows, getting stuck in formalistic thinking in which vital connections and a holistic perspective are missed can have catastrophic consequences.

The First Step: Understanding Adults' Thinking
At the Interdevelopmental Institute, we have developed a developmental diagnostic of thinking that clarifies the scope and differentiation, as well as flexibility, of a person's thinking at a particular point in his/her adult development (Basseches, 1984; Laske, 2008). When using structured interviews to explore leaders' or managers' model of the world, we are able to determine empirically the level of cognitive development from which they act.

A look at their cognitive behavior graph derived from the interview will show the fluidity of their thinking. Fluidity refers to the ability to think beyond formal logic, and is measured in terms of four classes of 'thought forms'. Thought forms are patterns reflecting high-level concepts used by an interviewee during a one-hour conversation about his or her work. Below is a graph showing the dynamic of the interviewee's moves-in-thought, traced in terms of thought forms in the four classes, numbered from 1 to 28 (7 each in each class).

Process	Context	Relationship	Transformation
	8		
5			
	10		
	8		
	9		
		19	(26; weak)
	10		
	13		
		20	
	16		
(4; weak)			

……. [rest of the interview]
TOTALS over the entire interview *(Fluidity Index = 29)*

Process	Context	Relationship	Transformation
3	**14**	**7**	**5**
[14%]	[67%]	[33%]	[24%] of optimum.

Figure 1. Cognitive behavior graph of a leader
[column entries refer to membership of dialectical thought forms
in four related classes; see Laske, 2008]

The leader referred to in the figure above, when speaking about his tasks and the roles he plays during the first 15 minutes of the IDM "Professional Agenda Interview," is a typical 'Aristotelian' thinker for whom the world consists of objects that have attributes and form closed, static systems. Accordingly, the thought forms he uses are primarily those of Context, that is, of things, rather than *forms under transformation*. While he has a reasonable understanding of intrinsic relationships between things (33%), notions of unceasing change are *terra incognita* for him (14%). His systemic thinking and grasp of transformations is modest (24% of optimum). Accordingly his Fluidity Index is also modest, and his present cognitive resources are below the level of work complexity he is paid to engage with.

Another way of characterizing the assessed individual is to point out that he is predominantly a 'constructive,' not a 'critical', thinker. This can be inferred from the fact that in his thinking he privileges thought forms of class Context and System over those of Process and Relationship. As a result, while he is at ease in constructing situations and scenarios in abstract ways, his thinking can be improved by teaching him to focus more strongly on change processes and relationships, thereby reinforcing his critical thinking. In this way, it would become easier for him to think in transformational terms and to honor the three principles of *Change, Conflict, and Holism* referred to above. As it is, he has a good grasp of closed static systems, but fails when required to understand, and respond to, open transformational systems.

While the graph primarily tells us about the thinking tools the leader is using, it is not very explicit about the leader's stance (Martin, 2007). However, the preponderance of Context thought forms conveys quite clearly that the person in question essentially holds a *spectator view of knowledge*. In such a view, the thinker pushes ideas and concepts around in his mental space like pieces of furniture, -- frozen concepts without a life of their own -- making the assumption that the concepts completely *render* the world they are meant to *model*. This is called formalistic thinking. As a consequence, the leader referred to is unlikely to engage in true *thinking actions* by which he questions himself and his models. As long as one's tools are primarily those of formal logic, nothing but formalistic thinking can be expected. (Stage theories are an example.) What is missing is a way of positioning oneself to the world relative to the uncertainty of one's own truth, -- a positioning that reflects an understanding of the limits of one's own knowledge in view of the real world's complexity.

In our ten-year experience of assessing leaders and managers at the Interdevelopmental Institute, we have found over and over that in highly developed individuals, social-emotional maturity (commonly referred to as 'emotion') and cognitive maturity ('thinking') go hand in hand. These two kinds of maturity help adults answer two crucial questions: (1) What should I do and for whom?, and (2) What can I do and what are my options? The first question is a *social-emotional* one, in the sense that answers to it require the ability to relate to others from a professional, self authoring point of view. The second question is a cognitive one since answers to it require a particular *stance* regarding the certainty of truth, on one hand, and more or less sophisticated logical and dialectical *tools*, on the other.

In our assessments, we have paid particular attention to gaps, in an individual, between the social-emotional and cognitive line of adult development. We have seen such gaps as causing major issues both for the person concerned and the people s(he) works with. We have concluded from our empirical findings (see www.interdevelopmentals.org/publications.php) that 'leadership' is not a set of traits, but rather a natural outcome of high levels of adult development (Laske, ILR VI.1, 2007). The same can be said of the ability to innovate. Importantly, even individuals with a conflicted psychological profile can be great leaders and highly innovative since they have learned to modulate their own personality by way of transformational thinking. Essentially, they see the world, including themselves, as an organized whole subject to constant transformation, rather than a sum of isolated pieces.

In this article, we want to draw some conclusions from the findings made over a decade, with a special focus on what we call *transformational thinking*. By this term we mean systemic thinking focusing on organized wholes, as well as dialectical thinking focused on what differentiates such wholes internally and externally. Since both aspects belong together, transformational thinking is, by definition, integrative. Below, these terms will take on a clearer meaning. We make these distinctions because it is our conviction that we need to move beyond conventional business practices to transformational thinking and solutions. As indicated, adult development is a natural resource to rely on making the move from the Aristotelian world of closed systems to the dialectical world of open transformational systems.

Part 2: What Is Transformational Thinking?

Historical Background

There is absolutely nothing new about transformational thinking. Asian dialecticism aside, in Western cultures it can be traced back to the writings of Plato. Historically, it has been known as 'dialectical' thinking, derived from the Greek *dialectikē*, meaning roughly the art of *letting one's mind wander through words*. Procedurally, it means 'splitting off', as when we mentally split off '*A*' from '*non-A*' in order to pursue the implications of their relationship, thereby broadening our inquiry.

In modern times, dialectic has been a key element within the German philosophical tradition beginning with Kant. It was his successor Hegel who crystallized the modern notion of dialectic, in a way continued by Adorno (1999) and Bhaskar (1993). The simplified, generic formulation of Hegel's dialectic is the familiar three-step process comprising the movement from thesis to antithesis to synthesis. Of course, there is much more to it. In the progression to the synthesis, the decisive turn regards the use of the antithesis. While in formal logical terms the antithesis is simply false (A being by definition always =A), treated dialectically the antithesis becomes a motor of discovery and innovation. This is because what is seen as non-A is preserved in a memory store from which it is retrieved when aiming for a broader, wide-scoped synthesis in one's thinking.

As already indicated Eastern cultures are no strangers to transformational thinking. The dialecticism we find in Asian thinking (Nisbett, 2005) derives from social notions of community different from ours. It leads to paying closer attention to what the 'objects' Western thinking is fixated on are embedded in, their dynamic environments, the unceasing

change objects undergo, and their relationship with opposites. As a consequence, nations touched by Chinese culture are more adept at what we here refer to as *dialectical thinking*. Clearly, then, cultural and historical differences come to the fore in how people think. The notion of cognitive science, that every human thinks alike, needs to be revised. The universality of thinking certainly does not occur at the level of formal logic (Nisbett, 2005).

Western cognitive science has largely bypassed the study of transformational thinking, with one exception in developmental psychology during the 1970s. At that time, the study of transformational thinking took an empirical turn on account of Michael Basseches' publication *Dialectical Thinking and Adult Development* (1984). In this book, Basseches draws upon the history of dialectical thinking since Plato. He distills 24 thought forms of a dialectical nature ('schemata'), and shows that they can be elicited through structured interviews, to show the degree of an adult's transformational ('dialectical') thinking. This research was a remarkable achievement. **It demonstrated that adults have a natural potential to grow into transformational thinking.** He also clarified that the development of dialectical thinking begins in late adolescence and progresses, in four phases, throughout the adult life time.

More recently, the British philosopher Roy Bhaskar has written a book titled *Dialectic: the Pulse of Freedom* (1993) in which he discusses the structures of dialectical thinking and presents his own critical realist dialectic. Central to his notion of dialectic is that it is a process of 'preservative negation' that *illuminates absences* (that which is missing or absent from a first view at what's real) and, by focusing on including absences, promotes the emergence of innovative thinking. Bhaskar's book lays the foundation for understanding, and working with, transformational thinking in today's business environment.

Currently, a powerful application of transformational thinking to the management of business and human systems is being developed by Otto Laske at the Interdevelopmental Institute. As a student of the Frankfurt School, Laske is a lifelong student of dialectic. In volume 2 of his latest book, to appear in the Fall of 2008, Laske weaves together many of the historical threads from earlier dialectical thinkers. He builds on the empirical work of Basseches to create an evidence-based approach to process consulting and human resources management. The contents of this book have been the topic of distance learning seminars at the Interdevelopmental Institute since 2000 (www.interdevelopmentals.org).

Contemporary Developments in Management Thinking
The need for more systemic ways of thinking in developing business strategy and managing organizations has increasingly emerged as a central topic in the business literature. The examples below refer to a few of the significant developments.

An important contributor to business thinking is Elliott Jaques, whose notion of *human capability* is centered on the balance of cognitive abilities ('size of person') and degree of responsibility in organizational roles ('size of role'). According to Jaques' Human Capability (1994), thinking determines a worker's *current potential capability* that is available for use if and only if noticed and supported by a company's or institution's organizational culture. Wherever a company assigns people into roles such that their cognitive capability is commensurate with the time span, thus complexity, of their role at work, it is said to be 'requisitely organized' (Requisite Organization, 1998).

In a recent book called <u>The Opposable Mind</u> (2007), Roger Martin, Dean at the Rotman Business School at the University of Toronto, discusses the capacity of very successful leaders to move past "either-or" thinking and hold two opposing ideas in mind, ultimately resolving their conflict in an innovative synthesis. The synthesis is the result of hypothetical or 'abductive' thinking (Peirce, 1931-32). It results in a solution that integrates opposing ideas, frequently creating a new product or market untapped by the competition. Martin explores the process leading to "integrative" thinking, noting that such leaders consciously determine the "salience" (*context*) of different decision factors, frequently including features that others may ignore, create a mental model of the causal *relationships* between these factors, develop a decision architecture (*process*), leading to a resolution distinct from anything earlier considered possible.

In a more popular vein, in <u>Blue Ocean Strategy</u> (2005), Kim and Mauborgne discuss the creation of new market spaces unseen by competitors fighting it out in existing "red ocean" markets. The authors point out that new markets are in constant emergence, yet most companies stay focused on highly competitive existing markets. The fundamental idea behind finding and defining a "blue ocean" market space is a different way of thinking about strategy. Traditionally, according to the authors, strategic planning focuses on a company and its specific competence as the unit of analysis. Blue ocean companies develop "strategic moves" focusing on establishing a major market-creating offering. Such moves are "moves in thought," to speak with Basseches (1984). Through a reconstruction of market boundaries, strategic moves essentially create a new *context*, simultaneously creating "value innovation" through a different *relationship* between value and cost factors; they develop new *processes* and organization structures to deliver new offerings. The result is a comprehensively transformed system including market definition, product or service offering, and delivery process.

Part 3: On Transformational Thinking

The Development of Transformational Thinking in Adults
Transformational thinking is best considered an *extension* of formal logical thinking. It is a natural outcome of human maturation over the life span, not something dropping onto elites from the heavens. Rather, it represents a line of adult cognitive development that builds upon mastery of formal logic and transcends its limitations. Logic's great strength is making pertinent distinctions, while its stark limitation is a restricted notion of negation as pure falsehood.

While Asian dialecticism is largely divorced from formal logic, and is a common sense form of dialectical thinking, the Western notion of dialectic is inseparable from that of logic. The first to study the development of logical thinking in children and adolescents was Piaget (1972) who thought of himself as a 'genetic epistemologist' studying human consciousness as one would study mollusks. He considered formal operations to be the pinnacle of mental development, and that view has been the conventional wisdom since. When Basseches and others began to research levels of thinking that came <u>after</u> formal operational thought (1978), they felt compelled to coin the term 'post-formal' as a way to differentiate these higher cognitive achievements from the findings about logic by Piaget.

The fundamental difference between post-formal and formal thinking, according to research at the Kohlberg School at Harvard (Perry, 1968; Basseches, 1984) is a sense of dynamism and fluidity leading to a larger mental space in which to operate. Formal operational thinking is based on static objects having attributes and together forming closed systems: A equals A, and B equals B. The world exists as nouns. By contrast, post-formal thinking sees a dynamic and constantly changing world, forms in transformation, verbs instead of nouns, A becoming A'. Since exercising post-formal – and, by implication, 'post-conventional' -- thinking is a matter of level of adult development, the question every manager and leader should confront is: "have I reached the optimal level of my cognitive development, and if not, who can help me develop my thinking further?"

Everybody agrees that one can improve one's thinking, but not many people understand that this "improvement" is built into human consciousness from the start. This entails that developing one's thinking is embedded in *non-cognitive processes*, such as epistemic stance and social-emotional maturity. As a result, developing one's thinking is not purely a matter of 'cognitive skills'. Rather, every person works from a highly personal knowledge system, and in this system, the person's stance and tools are always in balance. If you believe that what you perceive with your senses is 'real', your stance vis a vis reality will be congruent with that belief, and so will be your tools. If, however, you have a more abstract notion of truth, your tools will comprise higher-level abstractions and an awareness that your models are different from the world they model for you.

Taking into account King and Kitchener's work on the development of reflective judgment (1994), we can say that adult's capacity for transformational thinking depends on their *epistemic stance*, in the way outlined in Figure 2, below (Laske, 2008):

Phase of Dialectical Thinking	Cognitive Fluidity [Flexibility]	Epistemic Stance (Position)
Phase 4**** [meta-systemic]	> 50	7
Phase 3*** [systemic]	< 50	6
Phase 2** [transitional]	<30	5
Phase 1* [elementary]	< 10	4

Table 1. Correspondence of phase of dialectical thinking,
expressed in terms of Fluidity Index,
and epistemic stance (Laske, 2008)

As indicated in the table, it is not before adults enter into epistemic position 4 that they begin to develop notions of *dialecticism*. At that point, they are just beginning to accept that truth is uncertain, imputing the uncertainty to the idiosyncrasy of people's opinions rather than the structure of reality itself. Initially, their dialectical notions are weak since the thought forms they engage are used in a shallow fashion and remain uncoordinated.

The use of dialectical thought forms becomes more secure in Phase 2 where we found the leader referenced above. The turning point occurs in Phase 3, where critical, constructive, and value-specific thought forms enter into adults thinking with force. The systemic thinking that now becomes a hallmark of individuals' cognitive behavior is further refined and strengthened in Phase 4, to a point where logical and dialectical thinking are optimally fused.

In brief, the characteristics of each of the four phases through which dialectical thinking develops are as follows (Laske, 2008; Basseches, 1989, 1984):
  1. <u>Phase 1:</u> few dialectical thought forms are available to the thinker, and they are largely merged with formal logic and concrete thought forms.
  2. <u>Phase 2:</u> a larger number of thought forms of class *Process, Context, and Relationship* can be discerned, but they remain uncoordinated, as shown by the absence of meta-systemic (transformational) thought forms.
  3. <u>Phase 3:</u> More and more thought form coordination is displayed, boosting the Systems Thinking Index and driving the Fluidity Index beyond 30.
  4. <u>Phase 4:</u> Most of the thought forms representing the *Four Quadrants of Dialectic* are in use. All formal-logical thinking is in the service of increasing thought form distinction and coordination.

The cognitive development outlined raises the question of how far dialectical thinking is *teachable.* Clearly, learning such thinking requires more than acquiring 'thinking skills' since using these skills and the cognitive tools they employ has epistemic and social-emotional preconditions relating to *Stance.* Since every person's knowledge system is highly personal and idiosyncratic, more than behavioral skills are involved. From what we know today it seems that the decisive inner 'turn' that has to occur in a person's cognitive development is at least twofold:
  1. You must begin to see the world including yourself as an organized whole that is in constant transformation, thus engaging with thought forms of process, context, relationship, and transformational system simultaneously.
  2. You must be aware of using concepts as *models of reality*, and must separate the act of conceptual modeling from the 'reality' that is being modeled.

While (1) embeds you in a larger environment of which you are an integral part, (2) creates the launching pad for investigating one's own thinking. And that's where it all begins! By splitting off concept and reality, and seeing reality as subject to constant transformation, an expanded space for hypothesis formulation and testing is created in consciousness. This expanded space can be filled by dialectical thought forms that assist you in 'seeing' the world in a truly new light.

A Model of Reality: The Four Quadrants of Dialectic

Put briefly, then, we can say that human thinking is trying to keep up with a reality that, as a transformational system, is unceasingly changing, subsumes isolated entities within its holistic scope, and is based on the relationship of forms (rather than entities) leading to conflict, reversal, paradox, and unforeseen consequences. Naturally, there are degrees of "keeping up with" reality. In this light, dialectical thinking appears as an attempt of human consciousness, to do justice to the ever-changing, interrelated, and contextual nature of life on this planet and in the cosmos. We speak of the 'Quadrants of Dialectic' -- process,

context, relationship, and transformational system -- as defining life and lived reality, and dialectical thought forms as tools for simulating life in thought (Bhaskar, 1993, Laske 2008).

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            ┌──────────────────────┬──────────────────────┐
            │                      │                      │
            │       Process        │     Relationship     │
            │                      │                      │
            ├──────────────────────┼──────────────────────┤
            │                      │   Transformational   │
            │       Context        │       System         │
            │                      │                      │
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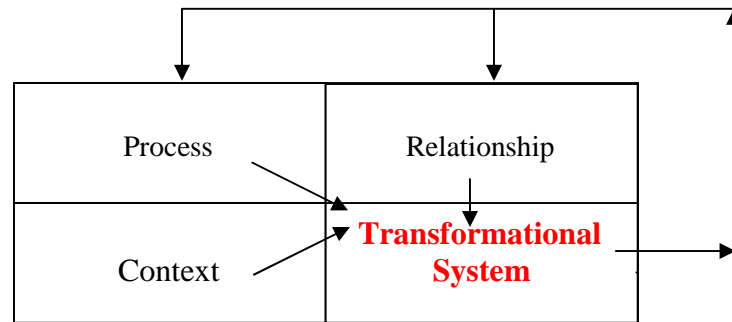
Figure 2. The Four Quadrants of Dialectic

When we think of processes, contexts, and relationships, we are always already *presupposing* that the world is an organized transformational whole. These three aspects are mere abstractions from a more encompassing reality of which processes, contexts, and relationships are just moments or elements.

How can this be grasped? When you begin thinking of reality as a transformational and open, rather than a closed, system, you naturally acknowledge that:
- There are processes instilling constant change, however hidden they may be, that make each day different.
- These processes give rise to always changing contexts, however stable, outwardly, they may seem to be.
- The contexts are based on elements with close relationships among themselves, which are the carriers of processes.
- "THEREFORE," it is unreasonable to assume that tomorrow will be like today. Only 'closed system thinking' will lead to such a mistaken assumption.

It is here that adult cognitive development, in particular epistemic stance, comes into play. Your stance, always in perfect balance with the cognitive tools you use, determines how much uncertainty you are able to accept without being overwhelmed by anxiousness (Martin, 2007). Stance is not something you make a conscious choice about. It is, rather, determined by the level of your cognitive development (your mental age). Beginning in late adolescence, cognitive certainties fall apart at the same time that dialectical thinking gradually emerges. Your 'epistemic' insight into the limits of your knowledge is broadened by entering the world of abstract hypotheses that permit true thinking actions to occur.

Up to a point, you post all kinds of notices to yourself that "this unceasing change cannot be true." But once your thinking matures, you gradually realize that you are immersed in an unending process far transcending your own life and community. You find yourself embedded in constitutive relationships that are so deep that you cannot fathom them. You then begin to glimpse the consequences of the Four Quadrants of Dialectic that 'run the world'. And how far this glimpse reaches at a particular time in your life can be precisely

assessed by structured interview, as research at the Interdevelopmental Institute shows (www.interdevelopmentals.org).

Part 4: Applications

Why Should One Care About Transformational Thinking?
What consequences can we draw from the dialectical nature of reality in terms of human learning and development, including leadership development? If the pinnacle of human thinking were indeed, as Piaget thought, formal logical thinking, humanity would be in bad shape. We could not survive in a world of forms in constant transformation and would never understand our own adult development either. The pupils of Aristotle would have less of a survival chance than the pupils of Confucius and Lao Tsu.

At this point, the relevance of Basseches' research becomes evident. This scholar demonstrated empirically that dialectical (transformational) thinking is an inherent human capacity that both "develops" and can "be developed," throughout adulthood. For purposes of doing business more wisely, it is advisable to focus on the two aspects of the English term 'development' with equal attention, the aspect pointing to development that happens:
1. regardless of human intervention (being);
2. on account of human intervention, whether teaching, coaching, mediation, or psychotherapy (doing).

In transformational thinking, both go together: one cannot develop something that in itself has no potential to develop.

For both of these aspects, Basseches' research is fundamental. He showed persuasively that transformational thinking can be learned and exercised in terms of clearly identifiable elements called 'thought forms' which our logically schooled mind can appreciate one by one. He also demonstrated that the degree to which dialectical thought forms are used by an individual can be precisely determined through structured interview, and acted upon through interventions such as coaching, mentoring, consulting, training and education. Due to this research, we are in the possession of a new technology called *transformational thinking* that can support our insight into physical and social reality as an organized whole and the incessant transformations it is subject to.

What is needed in management and consulting, then, is not only more attention to how leaders and managers actually 'think', but also the adoption of ways of teaching and developing people that is more informed by the three principles of dialecticism stated above (change, contradiction, holism). The procedure presently in vogue, to intervene with leaders exclusively based on their social-emotional "stage," is insufficient since it does not capture the cognitive processes that provoke a change to a subsequent stage.

<div align="center">***</div>

Over the last several years, our work at the Interdevelopmental Institute has thoroughly validated Basseches' research. In order to help leaders 'think better' based on a cognitive assessment, we have developed a *Manual of Dialectical Thought Forms* (Laske, 2008), now used by an international study body in coaching, management consulting, and leadership development. Credence to this approach is given by our two-track program, one for

certification of expertise in the *Constructive Developmental Framework* (CDF), and one for working professionals that is more highly geared to practical work.

In our work at the Interdevelopmental Institute, we have found multiple uses for the dialectical thought forms we teach. Among them are:

- Administration of cognitive interviews based on 'listening for' those classes of thought forms and individual thought forms that naturally emerge in professional conversations.
- Evaluation of cognitive interviews for the purpose of developmental assessment.
- Teaching practitioners and leaders the basis of dialecticism based on 'Aristotelian' formal logic (including abductive logic), with a focus on the three principles of dialecticism mentioned above.
- Using dialectical thought forms as 'Mind Openers' by which one's own and others' mind can be opened to new aspects of the issue or base concept presently focused on.

The most valuable and widely applicable of these uses is the last mentioned, in which dialectical thought forms ground an inquiry into aspects of a subject matter heretofore not considered. At the Institute, this use of dialecticism is the core of teaching and exercising transformational thinking. Essentially what results from focusing attention dialectically is that the interlocutor's Inquiring System is gradually transformed, losing its exclusive and rigid reliance on formal logic.

There exist two different, but related ways of waking people up from their Aristotelian slumber, nowadays heavily enforced by formal-logic based digital technology:

1. Seminars for teaching leaders transformational thinking.
2. Cognitive coaching based on schooling coaches in dialecticism.

Ultimately, what matters for both leaders and coaches is whether they can take on the challenge of making transformational thinking a daily practice. By so doing, they can ultimately leave behind the ingrained *spectator view of knowledge* they now hold which treats knowledge as information, rather than as a dynamic process of hypothesis-based inquiry.

Adopting dialecticism as one's daily practice is not a moral issue but an epistemic one. It has to do with a person's developmental readiness to let go off illusions of security as well as fear of taking risks in their thinking (Martin, 2007). This readiness is a complex issue. It involves not only a knowledge of limits of one's knowledge (epistemic position) but also presupposes reaching a certain social-emotional stage. In this sense, the thinking tools available to a person are a function of his or her stance, and this stance has two related aspects, as shown in Fig. 2, below:
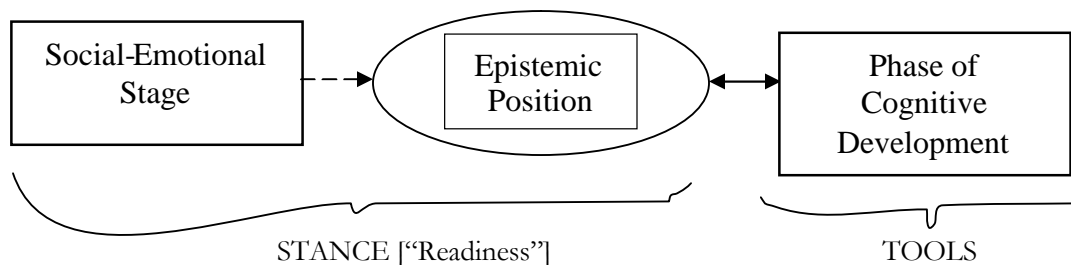
Figure 3. Two aspects of Stance as enablers of transformational thinking

Case Study
What is the pragmatic relevance of the model in Figure 2? The model says that we can "develop leaders" if they are people who have themselves already "developed" to a point of readiness to embrace new thinking tools, especially dialectical tools. Giving such leaders access to dialectical tools will provoke those ready for transformational thinking to change their Inquiring System. When developmental experts, who are themselves dialectically schooled, intervene with leaders, they can provoke a change of Inquiring System.

The example below substantiates this point:

> A is Director of Asset Management in a large international financial services firm, a position he has grown into over the last 5 years. Initially Director of Marketing, A invested considerable effort in learning the foundations his new expertise as an understudy of the former Director of Asset Management. After an initial developmental assessment comprising not only an analysis of his present fluidity of dialectical thinking but also of his 'social-emotional' maturity and psychological balance at work at the Interdevelopmental Institute, A developed himself through cognitive coaching over 2 years, weekly at first, and with increasingly longer intermediate periods thereafter. Dialectical coaching was extended to his major collaborators.

> Since developmental coaching has a delayed effect in the period following the coaching, the continuation of the coaching was left in A's hands entirely. In the last 3 years, he engaged with his coach occasionally, 'on demand', whenever he found himself in a critical situation of decision making. Confidential coaching records show that not only A's dialectical astuteness , but also his financial successes have increased considerably since the formal end of coaching.

> A has restructured his firm's balance of acquiring new and administering existing assets. Strictly bureaucratic tasks no longer hinder him from acquiring new promising assets. He is now directing several teams with whose assistance he formulates his firm's capital and risk management strategies.

> According to his own testimony, his investment in being groomed as a dialectical thinker has had a major impact on A's success, not only in terms of maturity of thinking and decision making, but also in terms of size of assets under his management. Thinking in terms of transformational systems, he has been aware of the instability of the US financial system for some time, expecting it to be severely tested, and has proceeded accordingly.

Benefits of Transformational Thinking
How did A. achieve such results? They are not simply due to having acquired new 'thinking skills'. Rather, a transformation of A's view of the world has occurred. Due to this transformation, he has been able to let go of the *spectator view of knowledge* he previously exercised. Grasping the dialectics of reality led him to new curiosity, attitudes, and values.

Whether your new thinking is brought about by coaching or training, once you see the world as being in constant transformation, are aware that each context has its big picture, and eager

to understand heretofore hidden relationships, you are operating from a different stance, and this stance enables you to use cognitive tools of a new kind. As Martin (2007) makes clear, Stance, Tools, and Experience form a coordinated whole in which one element reinforces the others. A thinker's stance and tools are always in balance.

One of the overriding effects of transformational thinking is that it creates a new culture of collaboration. Members of a top-management team suddenly discover that others' point of view, while seemingly in opposition to their own, is a fruitful antithesis to their own views, and can be used as a launching pad of synthesizing opposing views. Now able to transcend their own splendid isolation, and more observant of their own thought processes, managers learn to internalize and hold others' perspective, thereby enriching their limited view point. By taking up others' point of view and internalizing it, team members create new synergies and work with others with a new kind of fluency and respect.

Summary and Conclusion
Transformational thinking is a set of discovery procedures potentially available to the adult mind. These procedures are based on both the loss of ego-centrism over the life span and the ensuing loss of certainty of the absoluteness of truth and knowledge. The development of this 'post-conventional', post-Aristotelian way of thinking begins in late adolescence and, if not stalled, will continue until the end of life, leading to *practical wisdom.* **Transformational thinking is a gift of consciousness serving the survival of humans in a world of unrelenting change anchored in the Four Quadrants.** When becoming second nature, and/or built into a culture from the start, this kind of thinking appears as a common sense dialecticism of great power and simplicity. In our Western culture which is rooted in Greek rationalism, especially the philosophy of Aristotle (Nisbett, 2005), such dialecticism has a "counter-cultural" flavor.

Most managers and leaders assessed at the Interdevelopmental Institute since 2000 have been shown to make sense of the world either in phase 1 or 2 of transformational thinking. Their Fluidity Index has typically not surpassed 30, close to the example in Fig. 1, above. Those in phase 2 clearly have better chances of being innovative or excelling as leaders, independently of their social-emotional intelligence.

We see the benefit of transformational thinking in being able to operate in a larger mental space and with emphasis on undertaking thinking actions rather than continuing to hold a spectator view of knowledge based on the assumption that the concepts you use exhaust the richness of the subject matter you are trying to understand. This formalistic approach to knowledge and the use of concepts lets you get caught in a purely internal spin in which concepts deteriorate to mere labels for what you 'think' you understand. The great financial crisis in the US in the Fall of 2008 is a good example of formalistic thinking: if you believe that "securities" are secure no matter what, the Quadrants of Dialectic will eventually force you to pay attention to what is the real foundation of the security you are counting on.

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