

Now you get it, now you don't:

Developmental Differences in the Understanding of Integral Theory and Practice

Zachary Stein¹

Developmental Testing Service

Harvard University Graduate School of Education

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Every ultimate fact is only the first of a new series. Every general law only a particular fact of some more general law presently to disclose itself. There is no outside, no inclosing wall, no circumference to us. The theory of today, which haunts the mind and cannot be escaped, will presently be abridged into a word, and the principle that seemed to explain nature will itself be included as one example of a bolder generalization. In the thought of to-morrow there is a power to upheave all thy creed. Step by step we scale this mysterious ladder. Fear not the new generalization. We walk as prophecies of the next age. When science is learned in love, and its powers are wielded by love, they will appear the supplements and continuations of the material evolution.

-R.W. Emerson ("Circles" and "Art")

¹ I received invaluable help from Dr. Dawson, and from Katie Heikkinen. I would also like to thank Sean Esbjörn-Hargens and Mark Forman for their efforts in organizing the conference at which this paper was originally presented, and in the editing this volume.

Introduction: the problem and the Developmental Maieutic approach

The wide and diverse community of scholars and practitioners involved with Integral Theory stand in bold contrast to the mainstream academy. In part, this has to do with the *popularity* of the movement, as people from all walks of life are orienting themselves in light of a set of common ideas. But the uniqueness of the Integral Community also has to do with the *complexity* of the ideas being shared. As popular as this cultural movement is becoming, it is nevertheless not an instance of pop-culture. The network of concepts, models, and outlooks that characterize Integral thinkers are not easy to understand because of their dynamism and scope. Yet the real difficulty of understanding these ideas is just beginning to become apparent, as the first efforts are underway to educate and inform the general public via graduate level programs and polished educative media outlets. It is becoming clear—and should be coming as no surprise—that not every one understands the basic concepts of Integral Theory and Practice in the same way.

This paper contains a set of working hypotheses about how to understand the development of reasoning skills in the domain of Integral Theory and Practice (ITP).² That is, I'm taking a first pass at outlining *levels* and *lines* in the development of reasoning about ITP itself. Importantly, the reflections offered here are meant to set the stage for an empirical research project about developmental differences in how individuals understand ITP. Roughly one year ago my colleagues and I at the Developmental Testing Service (DTS) were invited to join an ambitious project, headed up by Sean Esbjörn-Hargens, to research aspects of an M.A. program in ITP at John F. Kennedy University. This paper gears into that broad research initiative, offering a first set of speculative rational reconstructions about the development of reasoning in the domain of ITP.

At DTS we have been rationally reconstructing levels and lines in domains from leadership to physics (Dawson-Tunik, 2004c; Dawson-Tunik & Stein, 2004; 2004a; 2004b; 2006; Dawson & Stein, 2008). We refer to our broad method as *developmental maieutics*. Below I provide an overview of the components of this method, including an introduction to a complex model of human development known as *dynamic skill theory* (Fischer, 1980; Fischer and Bidell, 2006) and a sophisticated domain general developmental assessments system known as the Lectical™ Assessment System (Dawson, 2008; Stein & Heikkinen, 2008). Briefly, and to foreshadow, developmental maieutics is an approach to the generation of usable knowledge about human development that entails the collaboration of researchers and practitioners and the reconstruction of knowledge domains. Doing the latter involves determining the *horizontal structure* of a domain in terms of the different interrelated sub-domains, themes, and conceptual strands (i.e. determining the different *lines* in the domain). Rationally reconstructing a domain also involves characterizing the *vertical structure* of the domain in terms of the various *learning sequences* that unfold along the clusters of conceptual stands making up the key themes (i.e. determining the different *levels* in the understanding of key ideas).

This is *empirical work*. But in this paper I am offering *speculative hypotheses*. The goal here is both to frame key issues for empirical investigation and to give a sense of the kind of usable knowledge about the domain of ITP that we will ultimately produce. Importantly, clarifying the horizontal and vertical structure (the *lines* and *levels*) of a domain can inform building assessments that can be used to generate focused psychographs and inform curriculum

² I use ITP to stand for approaches stemming from Wilber's work. But one hypothesis offered below suggests that a certain type of "post-conventionalism" characterizes the higher-levels of reasoning about ITP, i.e. as development unfolds, simple appeals to authority wane, and individuals justify their views in light of a polycentric network of thought-leaders.

development, among other things. But before I introduce our approach and go on to speculate about how development unfolds in the domain of ITP, I want to touch on some broader themes. Habermas (1990), who engages in a method of rational reconstruction comparable to ours, is adamant about the important function of rational reconstructions in critical self-reflective activity. That's is, accounts of how reasoning in a domain unfolds can be fed back into the domain itself as a kind of self-reflective quality control mechanism.

When movements look in the mirror: on the application of Integral Theory to itself

Around the turn of the last century, Charles S. Peirce—polymath and prodigious Integral progenitor—was invited by his dear friend William James to give a series of lectures at Harvard on the philosophical movement they had partnered to spawn, namely Pragmatism. The term *pragmatism* had been coin by Piece, along with the general philosophical outlook, when they were both burgeoning young scholars. But James had popularized the idea and created a movement, perhaps the last great publicly embraced philosophical movement in America (before Integral, that is—and after Transcendentalism). But Peirce was not happy about the popularization and felt that his terms and concepts had been "kidnapped," "muddled," and "watered-down." So he did what any good logician and semiotician would do, he used these very terms and concepts to analyze their own popular usage (Peirce, 1898; 1903). That is, he employed the principles of Pragmatism—"the method of right thinking"—to analyze the popular use of Pragmatism. This self-application of the theory convinced Peirce that he needed to set apart two distinct types or levels of Pragmatism, one simple the other complex. He coined a new set of terms, pledged allegiance to the more complex brand, dubbing it *Pragmatism*, and left James and his followers with the popular and simpler Pragmatism.

Complex philosophical approaches and worldviews can, and do, reach beyond the boundaries of the academy and into the lifeworld. To name a few from the modern West: Emerson's Transcendentalism, Darwin's Theory of Evolution, Marx's Communism, Peirce's Pragmatism, Freud's Psychoanalysis, Sartre's Existentialism, Foucault's Post-Structuralism, Habermas's Critical Theory, Wilber's Integral Philosophy. These are rigorous and complex scholarly and scientific efforts that came to be consumed by the public at large. And as the example of Peirce's Pragmatism shows, ideas take on a life of their own in the public sphere. Downward assimilations, simplifications, misuses, over-generalizations, commoditization, and fetishization, are all possible and probable as movements become popular. Thus these movements tend to branch apart into different streams of discourse. As noted above, Peirce explicitly differentiated different levels of discourse about Pragmatism by exercising self-reflective efforts at quality control and clarity.

This last point touches one of my real motives in this paper. I feel that ITP, as a complex field of endeavors and ideas, is reaching a critical point of self-awareness. Roughly, as Peirce did with his Pragmatism, so we should do with our Integral. That is, we should use our basic concepts to analyze our own discourse. There have always been calls for ITP to look at its *shadow*. But a call for ITP to look in the *mirror* transcends and includes this call for shadow work. Critical self-reflection is one key catalyst of growth. And to be fair we should apply *all* the same categories to ourselves that we use to evaluate and understand others. To get to the point: an approach that characterizes the world in developmental terms should be willing to characterize itself that way. If those engaged with ITP are willing to point out the developmental differences between individuals when it comes morality, politics, and religion, etc., then they should be willing to point out developmental difference between individuals when it comes to ITP itself. Of course, it goes without saying I hope, that the quest for *skillful means* is our motive for seeking conceptual clarity. As Forman & Esbjörn-Hargens (2008) have suggested: "Integral

Theory will only thrive insofar as valuable contributions to its criticism, clarification, application, and expansion come from many individuals working within its context...[individuals coming] from a committed place to improve Integral Theory by turning Integral Theory in on itself: an act of theoretical-applied self-reflection." This is a key motivation for applying our Integrally informed developmental approach to the domain of ITP.

Method, metric, model: building usable knowledge about human development

In essence our approach is simple. We have a broad *method* (Developmental Maieutics) based on a developmental *metric* (The Lectical™ Assessment System) and a developmental *model* (Dynamic Skill Theory). With these tools we aim to tie developmental research and assessment into educational practice, broadly construed. Here I will provide an overview of each of aspect of our approach to frame the discussion and hypotheses about the domain of ITP that follow. I will begin with a theoretically orient introduction to the model and metric. I will then discuss how we put these sophisticated tools to use in the context of practice. This all sets the stage for a discussion of how reasoning skills develop in the domain of ITP.

Structure, function, and emergence: Skill Theory and The Lectical™ Assessment System.

Piaget (1977), like Baldwin (1906) before him, maintained that development at all levels is characterized by a continuous function (i.e. equilibration) that gives rise to variations in structure. New structures emerge as a result of unchanging functional activity; equilibration catalyzes restructuring.³ Following Piaget and Baldwin, Fischer (Fischer & Bidell, 2006) suggests an integration of structural and functional explanations that presupposes the ubiquity of self-organization as a property of behavior. This is a *dynamic developmental structuralism* that focuses on the construction of *skills*. The concept of a *skill* is similar to Piaget's *scheme* or Skinner's *operant* (Fischer, 1980). It is also similar to Wilber's *holon* in so far as it signifies a generic unit of psychological process at all levels. It is important to remember just how broad this definition of skill is. One can have kinesthetic skills, conceptual skills, reasoning skills, meditative skills, etc. In this paper we are looking at the development of reasoning skills in the domain of ITP. Importantly, the notion of a skill, like the notion of a holon, also explicitly implies relations between diverse constitutive elements, e.g. biological and socio-cultural. If held rightly, it also counteracts the partitioning of cognition and action and behavior and context. But for our purposes here, adopting the notion of skill as basic eliminates the key dichotomy between function and structure.

Skills are mobilized to perform specific functions. Moreover, "the precise way a given skill is organized—its structure—is essential to its proper functioning" (Fischer & Bidell, 2006, p.322). Thus, each and every skill has both a structure and a function. Because of a general tendency of organisms and behavior toward self-organization, skills are not isolated units, but rather function together in complex structures of inter-participation. An ecosystem or economy should come to mind. Any given skill requires the existence of various others as component parts; these sub-skills function as parts in the skill's structure. And this skill itself is likewise required by others to perform some function as an integral part of their structure. Skill structures are built and re-built, honed relative to tasks and context, and vary dynamically over time. Skills support one another, compete for time and attention, and they combine to construct new higher-order emergent skills.

³ It is important to note in this context that Piaget's broad vision of multi-level self-organization processes (i.e. equilibration) is comparable to the Wilber's Twenty Tenets.

The dynamic construction of new skills is central to learning and development. Given the overview above, it should be clear that skills are built to serve some function and they have a structure built out of and relative to skills already in existence. Importantly, in this context we think of *lines of development* in terms of clusters of interrelated skills. A line of development is made up of a set of skills that all serve a relatively similar function, which makes them develop in relative synchrony. Skill sets with a different function develop in a different way and at a different pace. Yet, and this is key, the same patterns of skill construction characterize developmental processes in all lines. This idea again goes back to Piaget and Baldwin.

If equilibration was the most general function to which Piaget appealed to explain development, *reflective abstraction*⁴ was the most general process that he thought accounted for the emergence of new structures (Piaget, 1985; 2001). And like most of Piaget's concepts, it is variously defined and elaborated. In several places, Piaget contrasts *reflective abstraction* with *empirical abstraction* (Piaget, 2001, p. 317-322; 1985, p. 18-19). This is a good way to go. Empirical abstraction consists of a subject's "reading of physical observables" in light of existing schemes (Piaget, 1985, p. 19). This form of abstraction, similar to in some ways to assimilation (see Piaget, 2001, p. 22), makes sense of the senses by a more or less guided act of noticing. Guided by existing schemes, the subject *abstracts* the properties of interest in observables. But this form of abstraction is tied to sensations and actions and limited to the application existing schemes. Thus it is depended upon the prior accomplishments of reflective abstraction, which consists of, to follow the phrasing above, a subject's reading of their own actions and coordinations.

This process of *seeing important properties of what one is doing* is where new structures come from. In essence, reflective abstraction takes as an object the very acts by which the subject understands the world and this brings new meaning to those acts by grasping them and reconstructing them. To speak loosely, what was once a part of the subject's understanding becomes an object to the subject's understanding. For example, very young children understand objects and people by acting with them physically, arranging and relating to them variously, and generally exploring their properties with sensorimotor schemes. After sufficient experience and activity, these schemes become increasing interrelated as the child is compelled to make use of some types at certain times as opposed to others. The degree to which the child notices this patterned variability in their own behavior is the degree to which they have reflectively abstracted more general ways to organize and understand their own actions. Now, there is "bed time" and "eating," which exist as higher-order integrations of diverse sensorimotor schemes. This restructuring opens up whole new worlds. The child can pretend to eat or sleep when it is not actual time to or adapt new approaches to "hide-and-go-seek" in light of a fixed overarching goal.

Piaget (2001) maintained that this type of process goes all the way up. Specifically, (no surprise here) he saw the formalizations of mathematics and logic as the ultimate culmination this process. And while the elaboration of these formal systems is seemingly endless (e.g. Godel's theorem) they nevertheless signify the *completion* of basic equilibration processes in so far as they exemplify a radical separation of form from content. With this focus on mathematics and logic, Piaget unduly circumscribes the explanatory scope of some of his key concepts, like reflective abstraction. Of course, it could be maintained (see Smith, 1993) that Piaget was not interested in explaining things outside the acquisition of "necessary knowledge." But that is beside the point. Regardless, we must look elsewhere if we are out to explain more than the emergence of formal hypothetical-deductive operations.

⁴ There are various related terms and processes like *reflecting abstraction* and *meta-reflection*, the introduction of which would unnecessarily complicate our account; this is not a paper on Piaget. So we are telling a simpler story than Piaget would, but then, aren't we always?

Several theorists have taken the idea of reflective abstraction (or conceptions inspired thereby) and made it a key mechanism in intellectual development (Campbell & Bickhard, 1986; Case, 1985; Commons, Trudeau, Stein, Richards, & Krause, 1998; Fischer, 1980). Looking across all these models, it would appear that the notion of *hierarchical integration* is the modern equivalent of reflective abstraction. A difference of emphasis is clear, but the same basic micro-developmental process is being noticed. Adopting Fischer's (1980) language, this is a process whereby qualitatively new skills emerge via the "intercoordination" or "compounding" of previously existing skills. Like in the process of reflective abstraction, skills that were previously employed and focused on independently come to be coordinated and eventually fused into some more complex skill. This results in a hierarchy of increasingly complex skills. While Piaget still breathed, Fischer (1980) outlined the contours of this complexity hierarchy, offering a general model "specifying a universe of possible skill structures [and related] transformation rules" (p.48) in which the process of *hierarchical integration* took center stage. But unlike Piaget's model, which channels all transformations towards the *telos* of logical and mathematical formalizations, Fischer's model has more pluralistic implications.

So far, our account of Fischer's model has focused on the notions of *skill* and *hierarchical integration*: the former being the most basic *unit*, the latter being the most basic *process*. When combined, we get a model suggesting that human development is best understood in terms of diverse *hierarchies of skills*. As noted above, skills can be analyzed in terms of structure and function. A functional analysis entails specifying the various roles and uses skills have in the overall behavioral economy of the organism. Here, we differentiate skills according to functional role. When taking up a fine-grained level of analysis, skills cluster into domains defined by the specific type of task, but at more general levels of analyses, they cluster into more classical functional categories, e.g. intelligence, emotion, inter-personal, etc. (i.e. Wilber's *lines*).

A structural analysis of skills entails locating skills in a "universe of possible skill structures," which is a scale of complexity specified in terms of recursive *hierarchical integrations*. This "common skill scale" (Fischer & Bidell, 2006) has been refined in light of decades of research. And techniques of structural analysis have been likewise refined (Stein & Heikkinen, 2008). A crucial innovation in this respect was Dawson's work building the Lectical™ Assessment System (the LAS), which refined the developmental analysis of linguistic performances (Dawson-Tunik, 2005). Overall, decades of research have yielded a well-specified metric, the LAS, capable of measuring performances across almost the full range of possible skill structures, from *actions* and *representations* through *abstractions* to *principles*.⁵

The terms just listed are known as tiers; they signify major reorganizations of action and thought, i.e. the emergence of qualitatively new types of skills. Within the tiers, there are levels of increasing elaboration and complexity of coordination, from single elements, to linear combinations, to multivariate systems. As these systems become increasingly elaborated and numerous, major hierarchical integrations take place, constructing a qualitatively new type of skill that effectively "chunks" a whole system of lower-level skills. Think back to the example explaining reflective abstraction in which various sensorimotor schemes were eventually subsumed under the single representation "bed time." Major hierarchical integrations of this type

⁵ Importantly, Fischer, Dawson, and Commons acknowledged that they were honing in on the domain-general *shape of development* (Dawson-Tunik, Commons, Wilson, & Fischer, 2005). This means we can align various skills along a common metric, and yet still admit they are "apples and oranges" with regard to their content. Baldwin first hit upon this, and we traced a line from him through Piaget, Werner, and Kohlberg down to Fischer, where we found an image of multifarious skills, each defined in terms of content and context, any of which can be measured in terms of a *common metric*, e.g. the general properties of the skill's structure. The LAS (Dawson, 2008) is an explication of this *common metric* implicit in the various models.

mark the transition to a new tier and the beginning of a new series of levels of elaboration. Below is quick tour of the skill scale and the levels measured by the LAS, which begin at the representational tier after the emergence of the semiotic function.⁶

The first tier is *actions*. *Actions* are first exercised independently, but then the various and dissertate skilled actions at this level (e.g. reaching, grasping, looking, etc.) become combined and related into systems of actions that are, in a way, the sensorimotor characterization of objects, events, and significant conspecifics. These complex systems of actions are then available to be hierarchically integrated into single *representations*. This is the first major tier shift that has been widely researched (Piaget, 1962; Fischer & Jennings, 1981).

With the *representation* tier, we find the emergence of the "semiotic function" and the first inter-animations of action, emotion, thought, and language. *Representations* are concepts about objects, others, and immediately observable scenes. They are classifications of the properties revealed via actual or possible *actions* on objects. Thus they catalogue the most concrete types, classes, relations, and possibilities. For example, the *representation* "play time" synthesizes and invokes a wide range of possible objects, scenes, and emotions. Knowing what "play time" is means knowing that when it is "play time," we do this and that and the other (all actual or possible sensorimotor actions). As more *representations* become available, they are combined in increasingly complex coordinations until systems of *representations* become available to be hierarchically integrated to *abstractions*. This is the second major tier shift and gives rise to a whole new array of intellectual and emotional orientations (Fischer, Hand, & Russel 1984; Case, 1985; Inhelder & Piaget, 1958).

At the *abstractions* tier, we find emergent functions on various fronts, including reflective identity formation and hypothetical-deductive orientations to knowledge. *Abstractions* are concepts that operate upon basic concrete types, classes, relations, and possibilities. That is, they classify and organize *representations* (which in turn classify and organize *actions*). Thus *abstractions* catalogue general qualities that cut across concrete classes and disclose higher-order ensembles composed of various concrete relations. For example, the *abstraction* "personal integrity" combines and invokes not merely actions, but types of actions (e.g. truth telling, being fair) and not merely certain specific relationships but certain classes of relationships (e.g. good friends, helpful employees), and so on. As more *abstractions* become available, they are combined into increasingly complex coordinations, until systems of *abstractions* become available to be hierarchically integrated into *principles*. This is the third major tier shift and has been studied relatively little (Alexander & Langer, 1990; Commons, Richards, & Armon 1984; Fischer & Yan 2002). It is characterizing the structures and functions of skills at this tier that occupy us when we study "the higher stages."

At the "higher-stages"—the levels of the third tier (classically considered as Second Tier by the Integral Community)—we work to construct worldviews and philosophical frameworks, the consequences of which touch the core of our action orientations. Although empirical evidence is scant, it appears that *principles* guide the reflective self-regulation of entire disciplines and ethical communities and perform unique *discourse-regulative* function (see Sellers, 2005). They have a structure that organizes whole systems of abstractions in terms of overarching constructs that are informational dense and dialectically rich (be they linguistic, conceptual, or graphical).

Figure 1 displays the core structure of the common metric targeted by the LAS as it lines up with a variety of other developmental assessment systems. This figure is provided only to help acquaint readers with the metric we employ. Given limitations of time and space we cannot

⁶ For the limits of the LAS in it's relation to non-verbal performances see: Stein and Heikkinen, 2008.

go into the details about the validity and utility of the LAS here (for a thorough treatment see: Stein & Hiekkinen, 2008; Dawson, 2008).

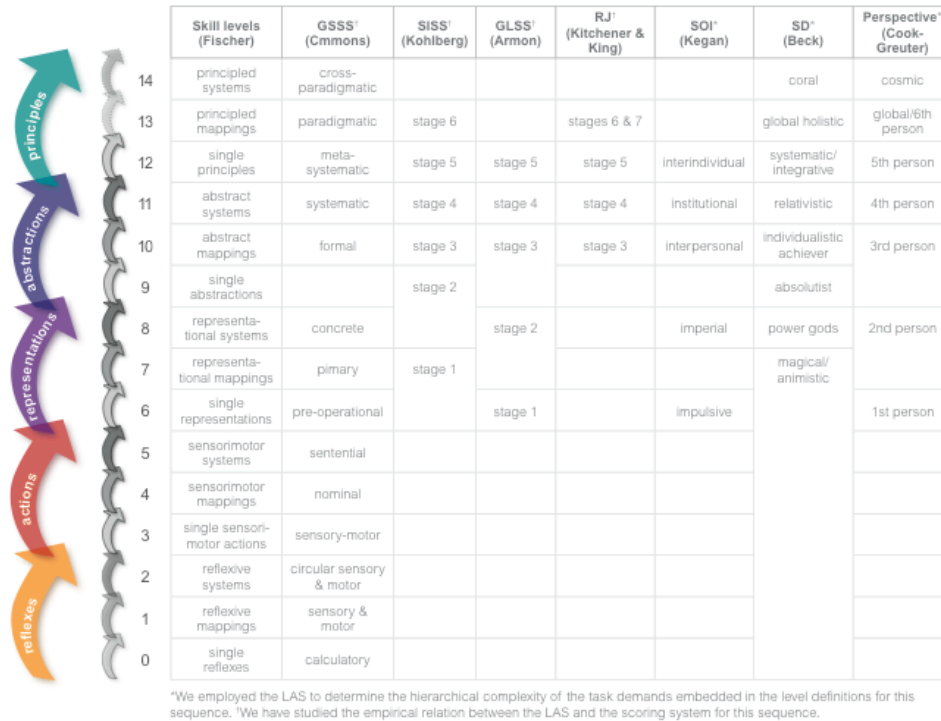


Figure 1: Displaying how the LAS lines up with other systems

Putting the model and metric to work: Developmental Maieutics.

Based on the combined insights and affordances of Fischer's *model* and Dawson's *metric* we have built a general and broad *method* for applying these tools in real world contexts of research and practice. *Developmental Maieutics* (Dawson & Stein, 2008) involves cycles of research and application using the LAS and its analytical accoutrements as a developmental assessment system and Skill Theory as a developmental framework. This method is the latest in over a century of efforts at tying developmental theory to practice and reform in education. It implicates a set of perennial themes in this regard.

Concerns about the relationship between education and psychology date to the birth of psychology as a discipline (James, 1899). Baldwin (1906) and Piaget (1979) were pioneering developmental approaches guided only by general theoretical interests, i.e., they were not out to generate usable knowledge for educators. Piaget (1932; 1965) echoed James in his belief that the psychology of the laboratory could not simply be imported into the classroom. He argued—like Dewey (1929)—about the need for concerted collaborations between educators and researchers for psychology to become a relevant and effective source of knowledge. James, Baldwin, Dewey, and Piaget all envisioned a symbiotic relationship between psychologists and

educators. Moving towards this vision of merging research and practice, specifically in the area of human development, is one of the goals of developmental maieutics.

Another goal is the generation of a specific type of usable knowledge about human development: *learning sequences*. A learning sequence (also known as a developmental pathway or learning progression) is an empirically grounded reconstruction of the steps or stages in the acquisition of a concept, skill, or capability. That is, it is a rational reconstruction of how a specific *line* of development unfolds. Well-conceived learning sequences can be used to improve our understanding of human development, craft curricula, inform assessment, and characterize education and learning at all levels in all contexts.

It was Baldwin (1906) who first articulated a speculative vision about structure and dynamics of human development wherein different types of concepts and skills developed in different ways. In his wake, others have expressed similar ideas. For example, Werner (1948) offered a sophisticated model in which numerous and heterogeneous psychological processes developed in a non-synchronic fashion, but according to common processes of differentiation and integration. And while most would assume that Piaget thought nothing of the sort, Chapman (1988) demonstrated that Piaget's views regarding *the structure of the whole* are far from clear. Piaget's books are filled with research tracing the distinct developmental trajectories of very specific concepts, such as causality and justice. Again the image is of different abilities developing along different pathways, each capable of being reconstructed as learning sequence.

More recently, Fischer and his colleagues (Fischer & Biddell, 2006) have placed learning sequences at the heart of wide array of discourses concerning human development. Researchers from various camps have been building learning sequences using different methods based on different theoretical assumptions. All this work has yielded a dynamic picture of cognitive developmental processes where context sensitivity and variability is key (Rappolt-Schichtmann et al 2007). The acquisition of skills in any domain involves a set of possible learning sequences along which individuals show differentiated, dynamic, and non-synchronic development trajectories. Recently these various efforts have begun to dovetail, in part as a result of empirical progress and in part as a result of the trajectory of international educational reforms calling for curricula that promote deeper conceptual understanding, especially in the areas of science, critical thinking, social skills, and citizenship (e.g., OECD, 2007). It is in this tradition that we understand the construction of the learning sequences that form a fundamental part of the approach we offer.

Our attempts to combine these two themes has generated a broad method for systematically producing usable knowledge about learning sequences via the collaboration of practitioners and researchers with interests in human development. So we have an educationally oriented cognitive developmental perspective in which the promotion of optimal learning involves understanding:

- the developmental pathways through which concepts typically and optimally develop;
- the particular sub-concepts required to construct increasingly adequate understandings at each new developmental level;
- the range of sub-concepts required for an optimal understanding of a given concept;
- effective methods for developing these concepts; and
- accurate and reliable assessments of conceptual development that can be employed by classroom teachers (Dawson & Stein, 2008 p. 92).

We gain this type of understanding by moving through the steps of an iteratively structured collaborative research endeavor (see figure 2). The approach begins with the establishment of a collaborative relationship with teachers (or practitioners of various types with

interests in human development, e.g. coaches, therapists, etc.), with whom we select domains and problems worthy of attention. We then construct a rough sense of the selected domain based on existing knowledge. This entails a hypothetical *horizontal reconstruction* of the domain, which outlines the array of lines or skill-sets implicated by the domain. We also generate hypothetical *vertical reconstructions* of the domain, which outlines certain *levels* of certain learning sequences that are of interest. In the next section I presents our hypotheses about the structure of the domain of ITP. We use this rough sense of the levels and lines in the domain to build a set of developmental assessments that gear into relevant parts of the domain. These assessments generate data about the domain that we can use to generate empirically grounded rational reconstructions of the set of learning sequence that comprise the domain.

In Figure 2 the method employed to describe the learning sequences is represented in the small sub-spiral to the right of the main figure. The maieutic approach to identifying learning sequences involves submitting interview data to at least two forms of qualitative analysis. First, interview texts are independently analyzed for their developmental level using the LAS. Then we analyze their conceptual content by examining the specific meanings expressed in the performances. The results of these analyses are examined together to make inductive generalizations about trends in conceptual development, i.e. learning sequences. Using this method, we have described learning sequences for conceptions of leadership, good education, epistemology, learning, morality, and the self, as well as for critical thinking, decision-making, and problem-solving (Dawson, 2008; Dawson-Tunik & Stein, 2004; 2004a; 2004b; 2006).

Based on our findings about the key learning sequences in the domain, we refine learning activities and build better assessments. At this point, our level of understanding about the development in the domain is such that we can design high quality online assessments for general use. We have already done this in the domain of leadership reasoning. These online assessments also allow us to generating focused psychographs for large numbers of individuals across various contexts.

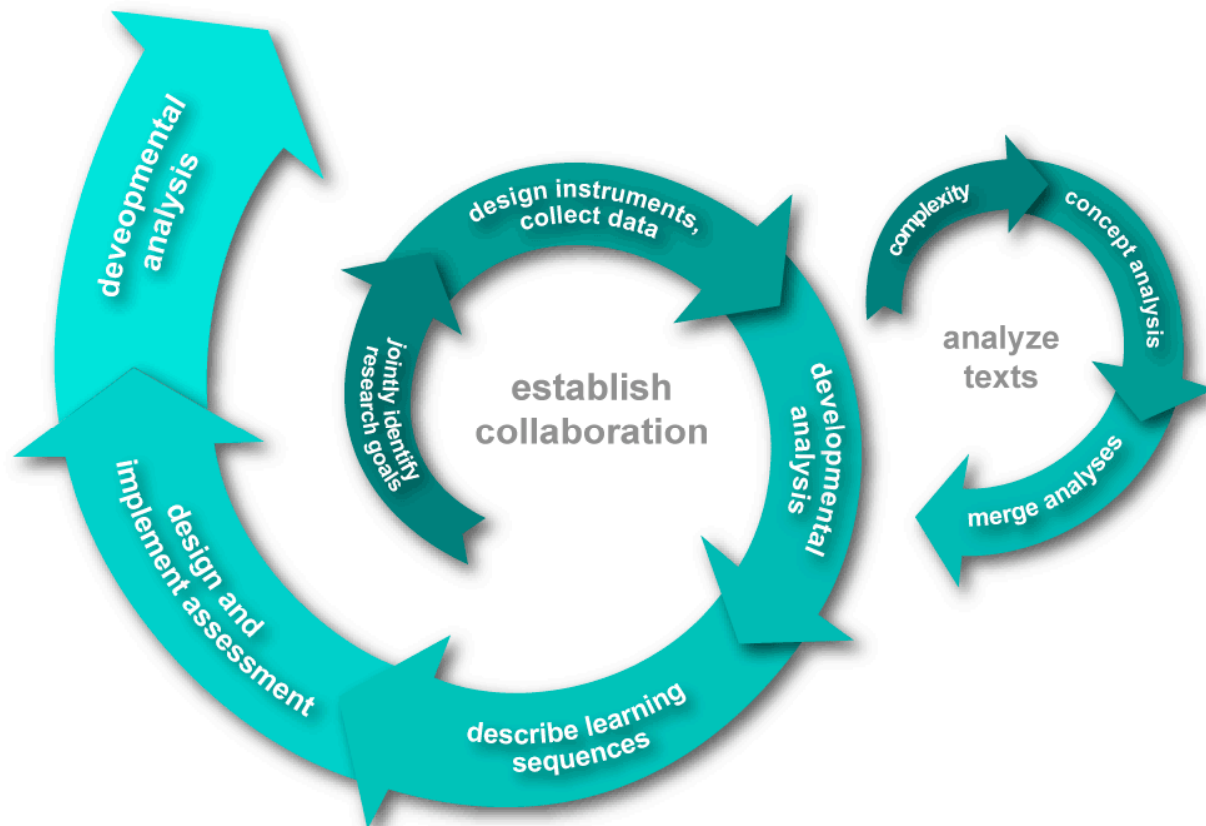


Figure 2: the *Developmental Maieutics spiral*

Rationally reconstructing the domain of Integral Theory and Practice

With this brief overview of the approach we take to developmental research, assessment, and application it should be somewhat clear what we plan to do in the domain of ITP. We are looking to collaborate with students, teachers, and educational institutions in the domain of ITP in order to generate usable knowledge about key learning sequences and thus re-tool practitioners with assessments and information that can inform educative efforts on all fronts. That means we are looking to generate empirically grounded rational reconstructions of the vertical and horizontal structure (i.e. the *levels and lines*) of the domain in order to build assessments that can be used to generate usable knowledge, e.g., focused psychographs targeting the key themes of ITP. Both the assessments and the rational reconstructions will be useful for a variety of purposes. In this section I will lay out some initial hypotheses concerning the general shape of the rational reconstructions we will be researching empirically. These hypotheses are meant to serve several functions. They serve as preliminary and tentative suggestions about what we might find, which help us build our initial assessments. They also serve as examples of the kind of usable knowledge we will produce after we have undertaken the first round of data collection and analysis. Following these speculations I will return to discuss certain practical applications and limitations of this approach.

The horizontal structure

Figure 3 displays the overarching horizontal structure of ITP as a domain. It is worth noting a few things about this way of conceiving the domain and about this figure. Generally

when we approach a domain in order to rationally reconstruct its horizontal structure we aim to explicate at least three degrees of specificity: *sub-domains*, *themes*, and *conceptual strands/learning sequences* (see: Dawson & Stein 2004; 2004b; 2008). Even when these divisions are empirically grounded there is nothing fixed or final about this way of slicing up the key dimensions of a domain. The task is fundamentally pragmatic and problem-focused. The idea is to explicate the implicit structural differentiations in a domain of knowledge so that we can build targeted assessments of *relatively* independent clusters of concepts and skills. The question is not about whether this is *the* actual structure of the domain (could such a question ever be answered in domains of knowledge that shift and evolve?). Rather, the question is whether this is a useful way of dividing up the domain for purposes of assessment and pedagogy.

The specific structure sketched in Figure 3 is extremely provisional. Future empirical work will flush out the details, particularly where things get most specific. The question of what the key *conceptual strands* and *learning sequences* are is almost entirely an empirical question. We need to bootstrap these dimensions of the domain out of actual performances of understanding by individuals at various levels as they reason about key themes in ITP.

Domain

Integral Theory & Practice

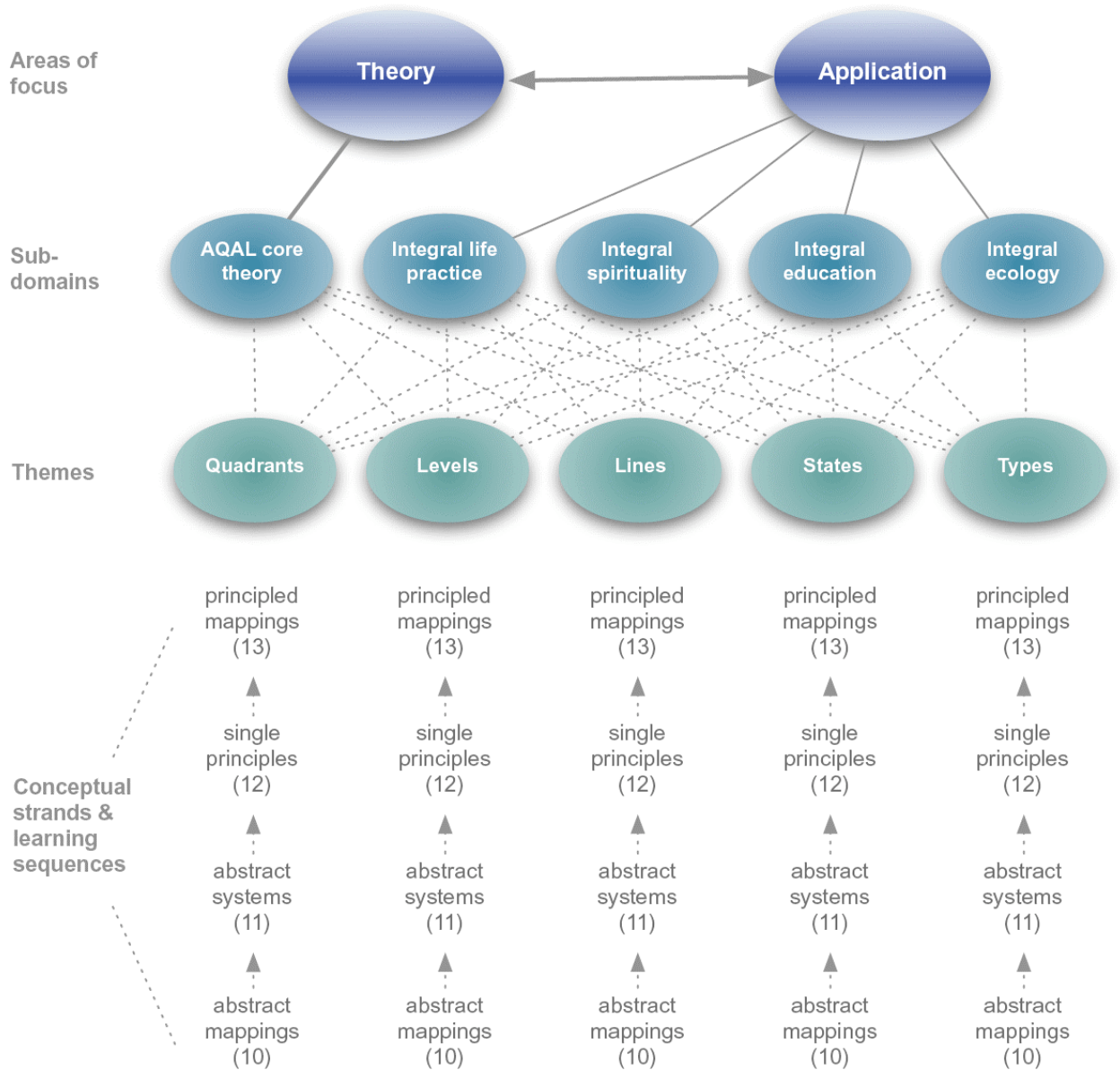


Figure 3: A tentative model of the domain of Integral Theory and Practice. Important and interrelated areas of focus (theory and practice) can be further differentiated into key sub-domains. Sub-domains are differentiated into themes. Development unfolds differentially across themes according to specific learning sequences, which contain conceptual stands. Of course, there are more possible sub-domains and themes than shown here. Unpacking the full richness of the domain requires empirical work. This is a schematic presentation for heuristic purposes only.

The learning sequences

Given this general structure we can hone in on sets of specific conceptual strands falling under each theme, which unfold as learning sequences. The table below presents two hypothetical learning sequences for the themes of *quadrants* and *levels*.

Level	Reasoning about the Quadrants	Reasoning about Levels of Development
Principled Mappings	At this level, reasoning about the <i>quadrants</i> involves a radical and quasi-transcendental multi-perspectivalism, which is made explicit in terms of a widely applicable post-metaphysical mode of meta-theoretical argumentation. In light of this background, attention is brought to the provisional nature of all methods and models, especially meta-theoretical ones. Integral Theory is broadly construed as a polycentric and evolving network of ideas catalyzed by certain highly normative principles and practices (e.g. IMP, <i>non-exclusion</i> , <i>enactment enfoldment</i> , etc.).	At this level, reasoning about <i>levels</i> involves the adoption of a post-metaphysical stance toward the task of evaluating people. The provisional, bounded, and multi-perspectival nature of all models and methods is admitted and a set of meta-theoretical principles guides a recursive process of continually refining developmental models and methods in terms of both theory and practice. A broad and explicit philosophical discourse comes to supplement evaluate discussions concerning the notion of "growth to goodness," as the human potentials that characterize the highest levels and the future of civilization are seen as collective constructions for which we are responsible.
Single Principles	At this level, reasoning about the <i>quadrants</i> involves an emphasis on their world-disclosing and epistemological significance. They are taken as representing deep-seated aspects of human thought and practice. Explicit appeals are made to various comparable frameworks and the quadrants are thus understood in terms of a broad historical and evolutionary context. Thus Integral Theory is seen as the leading edge of a socio-cultural movement emphasizing comprehensive approaches to pressing problems and the integration of science and religion.	At this level, reasoning about <i>levels</i> involves explicit ideas about the limits and affordances of different developmental methods and models, which are framed in terms of arguments about the conditions enabling their valid use (i.e. scoring systems, interview procedures, etc.). The idea of "growth to goodness" is problematized both by concerns over issues of horizontal health and intra-personal variability, and by concerns about the accuracy of different assessment methods. These complexities of method and application temper and complicate speculation on how developmental levels are implicated in a broad range of global problems.
Abstract Systems	At this level, reasoning about the <i>quadrants</i> involves a differentiation between their use as simple categories and their use as lenses or perspectives (i.e. <i>quadri-va</i>). Appeals are made to the theorists, methods, and personal pronouns (I-WE-IT) identified with each quadrant, which begins a focus on the quadrants as <i>perspectives</i> . Attention is typically brought to the practical efficacy of applying the quadrants, in personal practice, business, and academia. Creative application is common. Also, the complex ways in which the quadrants frame other core elements of Integral Theory are elaborated; the internal consistency of Integral Theory as a whole is treated as a given.	At this level, reasoning about <i>levels</i> involves giving some primacy to the construct of <i>altitude</i> , which frames and organizes a variety of developmental models. Persons are understood in terms of their relative development in various <i>lines</i> , which are identified with the different developmental models and theorists. The concept of a <i>center of gravity</i> supplements this differentiated view and justifies whole person assessments. The relation between levels and other aspects of Integral Theory becomes explicit; the relation between <i>states</i> and levels complicates the simple notion that spirituality is "at the top." Generally, there are elaborate ideas about how developmental levels are implicated in all kinds of issues (politics, religion, ecology, etc.).
Abstract Mappings	At this level, the <i>quadrants</i> are treated as simple categories into which different objects or events can be placed. Classic dichotomies are established in terms of the quadrants: Science is on right, Religion is on the left; Reason on the right, Feeling on the left; Body on the right, Mind on the left, etc. Generally the quadrants are taken as representing the existence of different kinds of <i>stuff</i> (i.e. they are read as an ontology). And Integral Theory is taken as a comprehensive map of what there is.	At this level, <i>developmental levels</i> are treated like simple stereotypes. Whole persons are classed as being <i>at</i> a level, which is typically understood in terms of a single developmental model (e.g. Spiral Dynamics). Development is understood as a kind of simple "growth to goodness", with ignorance at the bottom, science in the middle, and spirituality at the top. Particular levels gain more attention than others and function as more or less entrenched stereotypes, expressing preferences that are not necessarily developmental (e.g. "you are so green").

True learning sequences are empirically grounded rational reconstructions tracing the development of key sets of conceptual strands and skills. As explained above, we generate learning sequences by employing a multidimensional methodology to analyze performances of understanding regarding key themes (i.e. interviews, written essays, etc.). This method is one part developmental assessment (using the LAS), one part conceptual coding, and one part inductive reconstructive technique. The learning sequences presented above are based entirely on the third moment of this methodology, i.e. they are inductive reconstructions based on my familiarity with the discourse surrounding ITP. Nevertheless, they are accurate enough for our purposes here. They provide a sense of the *range* of possible understandings about these key themes in ITP. Of course, the idea is that for every theme we'd describe sequences across the wide range of issues in ITP. Thus, in light of our view of development, the domain is very complex and dynamic with a variety of learning sequences along which individuals can progress at different rates (see figures 4, 5, & 6 below).

It is important to understand that learning sequences are *distilled* out of the complex dynamics of actual developmental processes. They present development in terms of discrete levels and differentiated lines, when in reality lines interweave and development across levels is non-linear and messy. So, the learning sequences presented above should be understood as *woven* into the broader fabric of reasoning about ITP. Thinking horizontally, it is hard to say where reasoning about the *quadrants* starts and reasoning about *IMP* ends, or where reasoning about *levels* sets in and reasoning about *lines* phases out. Likewise, thinking vertically, the inter-animation of different sequences is a function of level, with new sequences emerging as development unfolds and connections between existing sequences becoming available as more complex capacities come on-line, etc. In light of this dynamism, I think it is a mistake to set out looking for *the* actual structure (vertical and horizontal) of the domain. I think we need to proceed in a problem-focused manner (Dawson, Fischer, & Stein, 2007), and hone in on the best way to reconstruct the domain for our purposes. What we are looking to do is build assessments that can inform educative efforts on all fronts at all levels.

The psychographs

The assessments we envision would, roughly speaking, generate a variety of *focused psychographs* (for the types of psychographs that can be generated using this method see: Stein & Heikkinen, 2008). Figures 4, 5, & 6 give a sense of the kind of psychographs that would ultimately result from this trajectory of research and application.

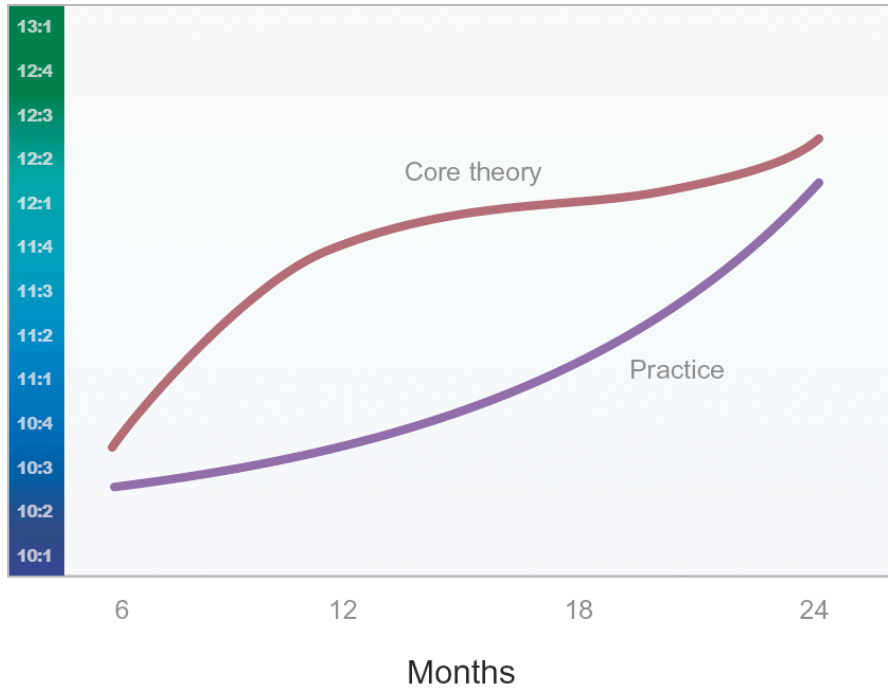


Figure 4: Diachronic psychograph focused on areas of Core Theory and Practice in domain of ITP

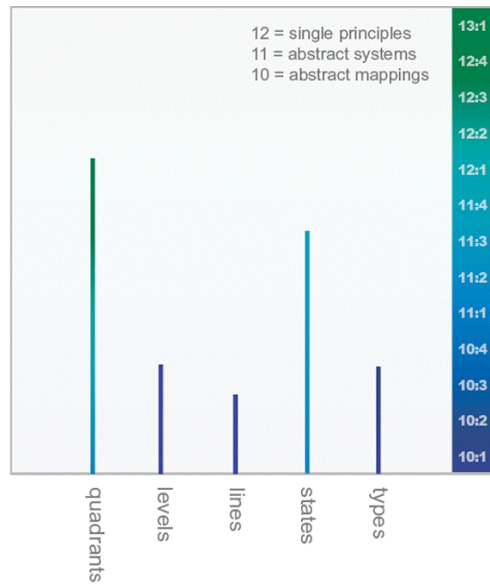


Figure 5: Synchronic psychograph focused on a set of themes in Core Theory

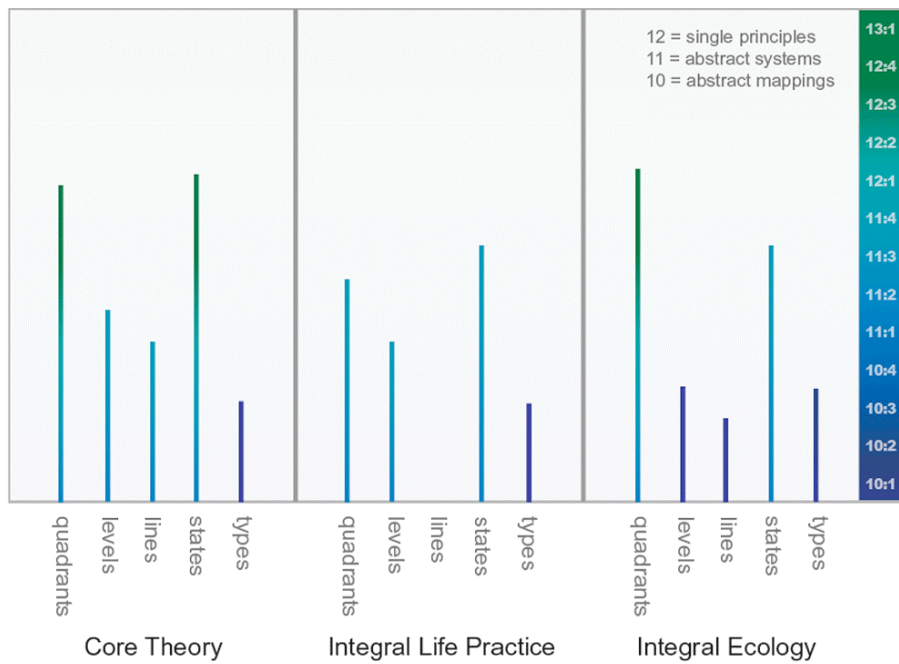


Figure 6: Synchronic psychograph focused on set of themes in both Core Theory and two applied contexts

These psychographs are relatively self-explanatory, but I will note a few things about them before moving on to address larger issues of research, assessment, application, and the future of Integral Education. The diachronic psychograph (Figure 4) is admittedly vague. But the point should be clear. Development is dynamic and progress in some learning sequences will out-pace progress in others. The implicit hypothesis presented in figure 4 (and figure 6) is that understandings of Core Theory set the pace for the progress of understandings in applied contexts. And the hypothesis implicit in all three figures is that, regardless of the area, development unfolds differentially across different themes, i.e. that individuals will be at different levels in their understanding of different conceptual strands in ITP. Both of these hypotheses are amenable to future empirical validation. And I think they will be shown to be more or less correct. In my experience most individuals involved with ITP are more developed in their understanding of the *quadrants* than they are in their understanding of *levels* and *states*, for example, and they more developed in their understanding of theoretical issues than issues in applied contexts.

In any case, as sophisticated as these psychographs appear, they are relatively straightforward to generate given the requisite research and the building of appropriate assessments. Comparable psychographs are available now in a variety of domains thanks to efforts at the Developmental Testing Service (go to: www.devttestservice.com). Of course, assessments can be put to use in different ways. As I discussed above, the *Developmental Maieutic* approach is predicated on our beliefs about the necessity of wedding developmental research and assessment with educational interventions and reforms. This leads us to a few reflections about the implications of generating this kind of usable knowledge in the domain of ITP.

Conclusions: knowledge and power

...every object rightly seen, unlocks a new faculty of the soul. That which was unconscious truth, becomes, when interpreted and defined, a part of the domain of knowledge—a new weapon in the magazine of power.

-R.W. Emerson (*Nature*)

Let's return briefly to the content of the learning sequences presented above. The types of developmental differences outlined there are clearly significant. There are real differences between individuals who understand the *quadrants* as parts of a new worldview created by a *Wizard*, and individuals who understand the *quadrants* as a provisional explication of certain meta-theoretical principles that are a contemporary expression of perennial philosophical themes, or echoes of *the mighty dead* reverberating through a polycentric network of contemporary thought-leaders. Likewise, there are real differences between individuals who understand developmental *levels* as value-laden stereotypes for ranking people, and individuals who understand *levels* as methodologically disclosed and error-prone characterizations of a radically complex space of possibilities and potentials, with non-obvious evaluative and prescriptive import. While we should not dismiss the moments of truth in the lower-level conceptualizations in either learning sequence, we must nevertheless grapple with this *range* of conceptions about the ideas in the domain of ITP.

Moreover, once our assessments get built and refined it will be relatively easy to generate a focused psychograph concerning the distribution of an individual's reasoning capabilities in the domain of ITP. That is, we will know who's developed in their thinking about Integral issues, and who is not. The psychographs presented above are just a taste of the kinds

of individualized assessments and concomitant feedback modalities we will be able to generate once research efforts are in full swing.

We will need to be very careful with how we use this knowledge. On the whole, we tend to use developmental assessments irresponsibly (Stein, 2008). We use them to categorize and stereotype people and to justify value-based preferences for in-group norms. That is, we don't think in a developed enough way about the meaning of development. A look at the learning sequences presented above suggests that we tend to think about development in Abstract Mappings terms. Now, here my argument is starting to eat its own tail, as the learning sequences are being fed back into the domain for quality control purposes. This aligns with Habermas's (1990) contention that rational reconstructions can serve a *critical* and *constructive* function. When we step back and take a look at what we are doing, we are prone to want to change it for the better.

From where I sit, the implications of all developmental differences should be understood in the context of education. We should tie assessments into our educative efforts at all levels. This means that when we use a developmental assessment to get or give feedback about individual development—or when we are just thinking in developmental terms about an issue or problem—we should frame things in terms of possible and preferable educational interventions. This is the broad vision of the *Developmental Maieutic* approach and it is justified methodologically, pragmatically, and ethically.

If we admit the provisional and error-prone nature of all developmental assessments then we must never use them merely to categorize individuals. Instead, we should employ developmental assessments to help people learn, all the while keeping one eye on the validity of the assessment itself. Doing this means having some humility about what our assessments can tell us and maintaining a desire to engage in the continual self-correction of our methods and metrics. Theoretically and methodologically we face a *need* for iterative problem-focused and practice-oriented developmental research in which assessments and educational interventions mutually inform one another. If we take up a post-metaphysical view, then we should arrange to use our assessments in situations that allow us to monitor their validity and usefulness. Educational contexts are ideal because they serve as natural experiments. We disclose the interior of the individual with our metric, then we enact a change to try to promote development, see what happens, and are made aware of the limits of our world-disclosing framework. So we re-tool and try again. There are complex methodological techniques for doing just this, which stem from and can be justified in terms of post-modern psychometric theory (see: Fisher 2004; 2005). A post-metaphysical stance towards developmental assessment requires us to remain open to the continual need to improve our metric in light of the contingences encountered in the field.

But there are also ethical and pragmatic reasons for wedding developmental research to educative efforts. As noted above, for over a century philosophers, psychologists, and educators have been saying that improving the effectiveness of educational endeavors at all levels requires a radical symbiosis of practice, theory, and research. It is hard to disagree when one looks at the ineffectiveness of so much education and the lack of real-world traction that hinders so many developmental theories. If we combine this insight with Wilber's Basic Moral Imperative—that we should work to promote the greatest development for the largest number of people—then it is hard to see why we would build developmental assessments *just* to rank people (say, for hiring and firing purposes). We should do developmental research and build developmental assessments in order to find better ways to promote development.

In the domain of ITP these efforts are just getting underway. Of course, as this movement looks in the mirror, developmental issues are only one small part of the self-critical

self-application of the theory that should be taking place. For example, our measurements of understanding need to be supplemented by measures of action; we can measure the *talk*, but what about the *walk*. Likewise, there are a variety of other dimensions to this endeavor, including organizational dynamics, contemplative practices, and the health of the body, etc. Multiple research efforts need to be underway.

Nevertheless, building knowledge about developmental differences in the understanding of ITP will be particularly important. The most obvious application of this usable knowledge will be in explicitly educational contexts, such the M.A. program in ITP at JFKU. In this kind of context, where ITP is being specifically taught, the focused psychographs will be invaluable for monitoring student progress (and for students in monitoring their own progress). But we will also be generating knowledge about how the most basic concepts in ITP are learned, which will be invaluable for pedagogical purposes. In particular, reconstructing learning sequences gives us insight into the hierarchical structure of the domain, allowing us to determine which concepts serve as prerequisites for the learning of others. With this knowledge we can build developmentally appropriate curricula. In general, we will be yielding important insights into how to best teach ITP.

Insights into how to best teach ITP clearly bleed over into concerns about how to best execute its broader dissemination. Knowledge about developmental differences in how people grasp and use key concepts in ITP could be used to refine and structure the various media providers and large scale initiatives aimed at bringing Integral to the general public. For example, gaining a sense about the most typical misconceptions, downward assimilations, and misuses could allow us to cut them off at the pass, with targeted interventions geared into specific aspects of the domain shown to cause common confusion. We will be able to locate the level and line were, for example, it is believed that cultural development and individual development more or less isomorphic. Then we could counteract this frequent and problematic misconception with information tailored to the array of concepts available at that level, i.e., building developmentally appropriate tactics for the infusion of ITP into the cultural at large.

Finally, issues of education and dissemination aside, the knowledge we will generate about ITP as a domain might help us better deal with the discourse itself, as the task-demands and complexity of trafficking in Integral ideas become clear. Generally speaking, there are no quality control standards for meta-theoretical and inter-disciplinary work (Stein, 2007). Building standards for work in a field as complex as ITP requires flushing out the different streams of discourse—like Peirce did for Pragmatism—and admitting that while we may be using the same words, we are often talking past one another. That is, Integral interlocutors need to be at comparable levels of complexity to be arguing at all, e.g., most of Wilber's critics take his ideas at a level or two below where he offers them. The range of possible ways to understand the nature of *levels* is another case in point. Most of the post-modernist critiques are targeting a straw man, because they are talking about *levels* at Abstract Mappings, when any developmentalist worth their salt would talk about levels at Single Principles and beyond.

In any case, it has been my goal her to offer only first approximations and hypotheses about this important area of inquiry. As the broad research initiative unfolds we will see what this first story is worth. One thing is for sure, however. What Integral Theory and Practice was is not what it will be after these first acts of critical self-reflection.

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