

Listening into the Dark: An Essay Testing the Validity and Efficacy of Collaborative Developmental Action Inquiry for Describing and Encouraging Transformations of Self, Society, and Scientific Inquiry

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Abstract: Collaborative Developmental Action Inquiry (CDAI) is introduced as a meta-paradigmatic approach to social science and social action that encompasses seven other more familiar paradigms (e.g., behaviorism, empirical positivism, and postmodern interpretivism) and that triangulates among third-person, objectivity-seeking social scientific inquiry, second-person, transformational, mutuality-seeking political inquiry, and first-person, adult, spiritual inquiry and consciousness development in the emerging present. CDAI tests findings, not only against third-person criteria of validity as do quantitative, positivist studies and qualitative, interpretive studies, but also against first- and second-person criteria of validity, as well as criteria of efficacy in action. CDAI introduces the possibility of treating, not just formal third-person studies, but any and all activities in one's daily life in an inquiring manner. The aim of this differently-scientific approach is not only theoretical, generalizable knowledge, but also knowledge that generates increasingly timely action in particular cases in the relationships that mean the most to the inquirer. To illustrate and explain why the CDAI approach can explain unusually high percentages of the variance in whether or not organizations actually transform, all three types of validity-testing are applied to a specific study of intended transformation in ten organizations. The ten organization study found that adding together the performance of each organization's CEO and lead consultant predicted 59% of the variance, beyond the .01 level, in whether and how the organization transformed (as rated by three scorers who achieved between .90 and 1.0 reliability). The essay concludes with a comparison between the empirical positivist paradigm of inquiry and the Collaborative Developmental Action Inquiry paradigm.

Keywords: Action inquiry, adult development, organization development, social scientific paradigms, validity testing, leadership, 1st-, 2nd-, and 3rd-person research.

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Introduction²

Collaborative Developmental Action Inquiry (CDAI) (Torbert, 1976, 1991; Torbert & Associates, 2004; Torbert & Livne-Tarandach, 2009) is a meta-paradigm of scientific inquiry that integrates first-person, adult spiritual inquiry and consciousness development in the emerging present with second-person, transformational, mutuality-seeking political action inquiry over a lifetime, and third-person, inter-generational, objectivity-seeking social scientific inquiry and its effects. In other words, CDAI seeks to triangulate among the subjective aspects of action and inquiry (within the first-person), the intersubjective interactional aspects of action and inquiry (between second-persons engaged with one another), and the objective aspects of action and inquiry (among a collective of third-persons-and-things at-a-distance-from and often-anonymous-to one another). The intent is to generate:

1. our own distinct, personal integrity (which needs re-contacting, re-imagining, re-strategizing, re-enacting, and re-assessing in each new engagement);
2. a mutually-vulnerable, mutually-empowering, and mutually-transforming dynamic in conversations, meetings, and other social occasions (which both feeds and requires inquiry together about shared purposes, useful roles, rules, and norms, as well as one another's relative efficacy, and the relative justice of outcomes);
3. more-generally-readable signs of the relative validity, fecundity, timeliness, and sustainability of longer term, purposive action projects.

Put in still another complementary way, the CDAI approach seeks to define, to practice, and to integrate both "during-the-act" research that influences present awareness and action and "before-and-after-the-fact" research that can influence future actions. In so doing, the very name Collaborative Developmental Action Inquiry recognizes that all research is also some form of practice, that all practice is also some form of research, and that we may later profoundly transform the very assumptions we are currently enacting about what constitutes research and action. (For recent related work that begins to describe the relationship among the first-, second-, and third-person aspects of inquiry, see Reason & Bradbury, 2001, 2008; Sherman & Torbert, 2000; Starr & Torbert, 2005; Torbert, 1997, 1999, 2000c; Varela & Shear, 1999; Varela & Shear, 1999; Velmans, 2000; Wilber, 1998).

This essay is a predominantly third-person "after-the-fact" form of social science, in three different and complementary ways: (a) it is written primarily for third-persons not directly involved in the research and action documented here (although at one point it offers a case of second-person action inquiry); (b) it is written primarily in a third-person voice (although at one point the first-person research voice is demonstrated and readers are invited to try a first-person experiment); and (c) it offers quite powerful statistical results in support of the third-person generalizability of some of its findings (powerful statistical results are results that account for large proportions of the variance and that are likely to misrepresent the "universe" from which the sample is drawn less than 1 in 100 times).

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But this essay is also *different* from typical Empirical Positivist (EP) scientific journal articles on validity testing of measures and findings in three major ways (see Table 1 for a typology of eight distinct scientific paradigms). First, the essay introduces the vast field of first-person research/practice and adult development leading toward empirically rare action-logics that are theoretically associated with increasingly timely and transforming action and inquiry, and that are statistically associated with successful leadership of organizational transformations by consultants and CEOs (see below). Second, the essay introduces the vast field of second-person research/practice that can directly generate personal, team, and organizational transformation (and offers a case study of such “during the act” research). And third, it offers forms of validity testing that include, but go beyond, third-person tests of the generalizability of data patterns (Cook & Campbell, 1979). These additional post-positivist validity tests (Argyris, Putnam & Smith, 1985; Denzin & Lincoln, 1994; Lather, 1993; Lincoln & Guba, 1985; Reason & Bradbury, 2001) begin to address the first-person integrity and the second-person mutuality of interactors in real-time.

The essay proceeds by offering first an introductory comparison among scientific paradigms conceived as based in different ones of the developmental action-logics that can also be used to distinguish individuals and organizations. These paradigms lead up to the CDAI meta-paradigm of paradigms that includes not only third-person inquiry, but also first- and second-person inquiry in the midst of action. In the following sections, examples of first- and second-person research are offered. Then, a close review of validity issues in a study of transformation in ten organizations is offered, in order to illustrate how the interweaving of first-, second-, and third-person research in the midst of action and after the action can generate unusually strong empirical findings. Finally, the CDAI paradigm of science is compared to the Empirical Positivist paradigm to see whether any conclusions can be reached about their relative comprehensiveness and about whether either resolves errors untouched by the other.

Background and Introductory Comparison among Scientific Paradigms

The different action-logics identified by developmental theory can be used to distinguish the personal action-logics of different *individuals*, and this is the realm where most developmental research and theorizing has occurred since the path-finding work of Piaget, which, a generation later, was expanded by adult development theory (Kegan, 1994; Torbert, 1987; Wilber, 1999). In addition, developmental theory can be derived from and used in exploring the interactional action-logics of different conversations, project, teams or *organizations* (Torbert, 1976, 1987, 1989; Torbert & Associates, 2004). This essay focuses primarily on a yet a third locus of development, namely how the institutional action-logics of different *social scientific paradigms* compare (see table 1 and table 2 below and Sherman & Torbert, 2000), and why the Developmental Action Inquiry paradigm is more likely to reveal and support the dynamics of developmental transformation in persons and organizations than the dominant paradigms of social science up to the present. This essay will make no attempt to offer a systematic discussion of each scientific paradigm, but will introduce the idea impressionistically through Table 1 and Table 2, illustrated by a very brief overview of different patterns of management research during the twentieth century. Then, the main body of the paper introduces the principal methods of

CDAI, along with a close look at one study of intervention in ten organizations and the validity testing of the results.

In broad overview, behaviorism (e.g., Taylor, Watson, Skinner) and Gestalt psychology, sociology & anthropology (e.g., Mayo, Roethlisberger, and both George Mead and Margaret Mead [unrelated]) were the pre-eminent and dueling social scientific paradigms of the early twentieth century. Empirical positivism (e.g., Popper, Milgram, Campbell) became increasingly pre-eminent in management studies during the third quarter of the century. And today, the dominant research strategy in management is probably multi-method eclecticism, which makes a place for qualitative methods that can chart dynamic processes, along with quantitative methods that can measure whether outcomes are significantly different from one another.

One strategy typical of the multi-method eclectic approach in management research during the past decades is to say that there are two types of inquiry and knowing that can challenge, correct, and ultimately complement one another: a more qualitative, interpretive, close-to-the-phenomena “inquiry from the inside” and a more quantitative, positivistic, theory-guided “inquiry from the outside” (Evered & Louis, 1981; Louis & Bartunek, 1992). Today it is fashionable to seek to integrate qualitative and quantitative methods, insider and outsider research, process descriptions and outcome measures, in attempts at triangulating toward useful approximations (Bartunek et al., 1993). But notice that these are all bi-polar triangulations. What would “strong triangulation” look like?

As qualitative methods have gained prestige in the Academy of Management during the past two decades, a second new wave of theory and research has “broken over” the management field as well. This second wave is far more controversial and impassioned than the first and doesn’t blend as well with empirical positivism. In fact, postmodern interpretivism (e.g., Gadamer, Smircich & Callas, Morgan, Weick), aka “the language turn” can be downright antagonistic toward mainstream social science, viewing it as a key element in a process of hostile observation for purposes of unilateral, un-self-questioning, and non-mutually-questioning social control and of linear, technological manipulation of the natural environment (Boje et al. 1996; Gadamer, 1982; Schwandt, 1994).

Postmodern interpretivism foregrounds the subjective framing process that precedes all structured thinking and action and that we each go through, almost all of us without ever realizing it (and even those of us who realize this in principle realize it in practice *only now and then*). This paradigm of inquiry and knowledge asks us what kind of “critical subjectivity” can help us become aware of, “deconstruct,” and “transgress” beyond, our own taken-for-granted subjective frames and boundaries as researchers (and as actors, the following paradigms will add).

Table 1: Analogies Among Personal, Organizational, and Social Scientific Developmental Paths

Personal Development	Organizational Development	Social Scientific Development
I. Birth-Impulsive	I. Conception	I. Anarchism (e.g., see Feyerabend, 1975)
(Multiple, distinctive impulses gradually resolve into characteristic approach; e.g., many fantasies into a particular dream for a new organization).		
II. Opportunist	II. Investments	II. Behaviorism
(Dominant task: gain power [e.g., bike riding skill] to have desired effect on outside world.)		
III. Diplomat	III. Incorporation	III. Gestalt Sociologism
(Looking-glass self: understanding others' culture/expectations and molding own actions to succeed in their [e.g., market] terms).		
IV. Expert	IV. Experiments	IV. Empirical Positivism
(Intellectual mastery of outside-self systems such that actions = experiments that confirm or disconfirm hypotheses and lead toward valid certainty).		
V. Achiever	V. Systematic Productivity	V. Multi-Method Eclecticism
(Pragmatic triangulation among plan/theory, operation/implementation, and outcome/assessment in incompletely predefined environment. Reliably uses <i>single-loop feedback</i> to improve real-time performance.		
VI. Strategist	VI. Collaborative Inquiry	VI. Postmodern Interpretivism
(Self-conscious mission/philosophy, sense of timing/historicity, invitation to conversation among multiple voices and to reframing of boundaries. Occasionally uses <i>double-loop feedback</i> to transform performance).		
VII. Alchemist	VII. Foundational Community	VII. Cooperative Ecological Inquiry
Life/science = a mind/matter, love/death/transformation praxis among others; cultivation of <i>triple-loop feedback</i> and re-attunement among inquiry, friendship, work, and earthly/material goods).		
VIII. Ironist	VIII. Liberating Disciplines	VIII. Collaborative Developmental Action Inquiry
(Full acceptance of multi-paradigmatic nature of human consciousness/reality, including distances/alienations among paradigms, resulting in interruptions of, and failures to listen into, <i>single-, double-, and triple-loop feedback</i>).		

Source: Adapted from Hartwell & Torbert (1999), where greater detail on characteristics of each personal and organizational action-logic is available. (Note: in the most recent versions of this developmental theory, e.g., Figure 1 later in this paper, an additional action-logic, Individualist/Pluralist/Relativist, is described between Achiever and Strategist).

One characteristic that is common among all five of these already-mentioned approaches to social science is that none of them demonstrates how the insights gained from academic research can form the basis for effective interaction among second-persons, or within a first-person (you/me) in the everyday world. Empirical positivism, multi-method eclecticism, or postmodern intepretivism can be of some use when we are apparently “at rest,” reflectively analyzing a data-

set or our own patterns of thought. But these paradigms eschew the vast majority of life's variance... including all those moments when we are uncertainly in interaction with others or with ourselves alone, when the question is how to attend and act in a timely, idiosyncratic, ecologically sensitive fashion.

Table 2: Brief Descriptions of Seven Social Scientific Paradigms³

Behaviorism	Assertive, physical quest for <i>reliable, unilateral control</i> through operant conditioning of an unembarrassedly objectified and atomized external world. Preferred method: laboratory experiments (maximizing the scientist's unilateral control over variation). Nominalist presumption of isolatable "stimuli" and "responses." Skinner – an archetypal behaviorist (Skinner 1953, 1971; Argyris, 1971).
Gestalt Sociologism	Appreciative, emotional quest for <i>understanding</i> of the overall pattern of subjective beliefs, values, and rituals of given "Other" cultures. Preferred method: <i>field case studies</i> based on non-interventionist, ethnographic observation. Essentialist presumption of integrative ideas, norms, and selves (Cooley, 1956; Mead, 1934).
Empirical Positivism	Critical (but not hermeneutically self-critical), intellectual quest for <i>predictive certainty</i> about deductively logical, universally generalizable, empirical propositions (Cook & Campbell, 1979; Hunt, 1994). Privileges <i>randomized sample</i> , experimental, <i>statistically-analyzed hypothesis testing studies</i> , along with computer modeling of intelligence, because of the crisply clear quantitative, binary certainty about distinctions between confirmation and disconfirmation (e.g., Simon's theoretical and empirical demonstrations of the concept of bounded rationality; Simon, 1947, 1957, 1969, 1989, 1991; March & Simon, 1958; Turkle, 1991).
Multi-Method Eclecticism	Practical quest to increase validity, understanding, and applicability of findings. Recommends <i>triangulation among quantitative and qualitative methods</i> . Currently fashionable and in flower in the managerial disciplines (e.g., Campbell et al., 1970; Eisenhardt, 1989; Dyer & Wilkins, 1991; Bartunek et al, 1993).
Postmodern Interpretivism	<i>Self-conscious accounting for the radical subjectivity</i> and fragmentariness of perspective that embraces every languaged perception and conception. Preferred method: wishes to <i>deconstruct the implicit</i> background of: (a) the objects foregrounded in single-frame, early-paradigm studies; and (b) of the researcher and of the writing of the author of the critique (e.g., Denzin & Lincoln, 1994; Macey, 1993; the 1990s Pfeffer-Van Maanen debate in managerial studies was between an early single-frame "Pfeffer-digm" and Van Maanen's rhetorical interpretivism [Pfeffer, 1993; Van Maanen, 1995; Frost, Pfeffer, Van Maanen, 1995]).
Cooperative Ecological Inquiry	Commitment to creating <i>real-time communities of inquiry</i> (i.e., communities that bridge subjectivities and differences of perspective, that confront incongruities among vision, strategy, action, and outcomes, and that support voluntary, mutual personal and social transformation [Bradbury, 1998; Cooperrider & Srivastva, 1987; Heron, 1996; Lather, 1993; Weick, 1998;

³ (See Torbert, 2000a, 2000d for greater detail)

Reason, 1994, 1995; Reason & Bradbury, 2001, 2008; Spretnak, 1991; Torbert, 1976]). Gregory Bateson (1972), Margaret Mead (1960), and their daughter, Mary Catherine Bateson (1984, 1990) the archetypal “family of real-time inquiry”. New methodological challenge: *how to test validity publicly in real time* - how in the midst of participating intersubjectively in specific situations, to listen, experiment, and seek disconfirmation (Argyris, Putnam & Smith, 1985) in a timely fashion (Torbert, 1991).

**Collaborative
Developmental Action
Inquiry**

Recognizing different moments, persons, organizations, and cultures as complex, chaotic interweavings of the six prior paradigms (Pondy & Mitroff, 1979), highlights the contrapuntal rhythms, interruptions, and interventions in developmental movement from one paradigm or action-logic to another, whether in single conversations or in whole lives (Fisher, Rooke & Torbert, 2000; Kegan, 1994; Rooke & Torbert, 1998; Torbert, 1989, 1991; Wilber, 1995). *Seeks interweaving of first-, second-, and third-person research/practice with single-, double-, and triple-loop feedback* that can sustain inter-paradigmatic conversation, work, meditation, and play. Generalization is recognized as occurring primarily one-at-a-time: one person at a time, as she or he practices awareness-expanding first-person action inquiry at more and more moments; one second-person organization at a time; one third-person research study at a time; though the entire statistical armamentarium remains appropriate within its limiting premises (as is illustrated by the validity testing of the ten organization study later in this essay).

The objective of the "action turn" in the social sciences (Bradbury, 1998; Reason & Rowan, 1981; Sherman & Torbert, 2000; Torbert, 1976, 1991; Reason & Torbert, 2001) is to go beyond the postmodern "language turn," and, whether we are professional social scientists or bricklayers or investment bankers, to bring inquiry into as many of our moments of action as we can (in the interests of increasing our own *integrity* and *mutuality*, as well as the *sustainability* of inquiries and actions such as ours). In this context, it is important to clarify that action research, as it has been known during the second half of the twentieth century, very rarely represents anything like this “action turn” and the CDAI paradigm to be described presently. More frequently, in its clinical and case-oriented qualities, action research has represented instances of Gestalt sociology; or, when it combines quantitative and qualitative methods with widely spaced feedback episodes, action research becomes a kind of multi-method eclecticism.

Like all personal, organizational, or scientific transformations, this transformation – this action turn – toward the paradigms we name cooperative ecological inquiry and Collaborative Developmental Action Inquiry in Tables 1 and 2, is anything but linear and straightforward. A metaphor that better communicates the unexpected twists that an action-logic engages in as it transforms toward wider inclusiveness might be "a backward stumbling double somersault through a trap door." Figure 1, below, shows how we have digitally illustrated developmental transformations in an earlier book (Torbert & Associates, 2004). To better imagine the unforeseeable twists and turns of this transformation, if you are a scholar/ scientist/ therapist/ consultant, imagine that you were seeking forms of social inquiry that you would want to “work” not just in your professional life, but with your immediate organizational and family life (e.g., with your 15-year-old child!), as well as in your spiritual, artistic, craft, exercise, conversational, sexual, and other activities...

Despite its “degree of difficulty” and its “relative unpremeditability,” this twisting, “action turn” is equally open to anyone willing to commit to integrating quantitative, qualitative, and action inquiry into their practices among others in everyday personal and professional settings (Reason & Torbert, 2001). But who is willing to do this? If we try to observe our own daily lives like scientists (Torbert, 1991, ch. 15), we come to realize:

1. *how rarely we actually practice such observation in action* (because our actions are largely habitual, and we forget to observe at the time, or to realize we don't know how to observe);
2. *the degree to which we can't imagine in any given present moment why we should observe now* (“Nothing interesting's going on right now... and aren't I doing enough anyway?”);
3. *how little we act like inquiring scientists in our relations with our colleagues, our intimates, or strangers* (because most relationships are bounded by issues that are tacitly treated as undiscussable); and
4. *how rarely in our enacted lives we are in a position to apply anything like Empirical Positivist standards of certainty and universalizability, or even that paradigm's version of truth as representational* (because in speaking each statement is active or presentational [Reason, 1994] as well as reflective or re-presentational [the technical term for this mix is “quasi-performative” (Pitkin, 1981)]).

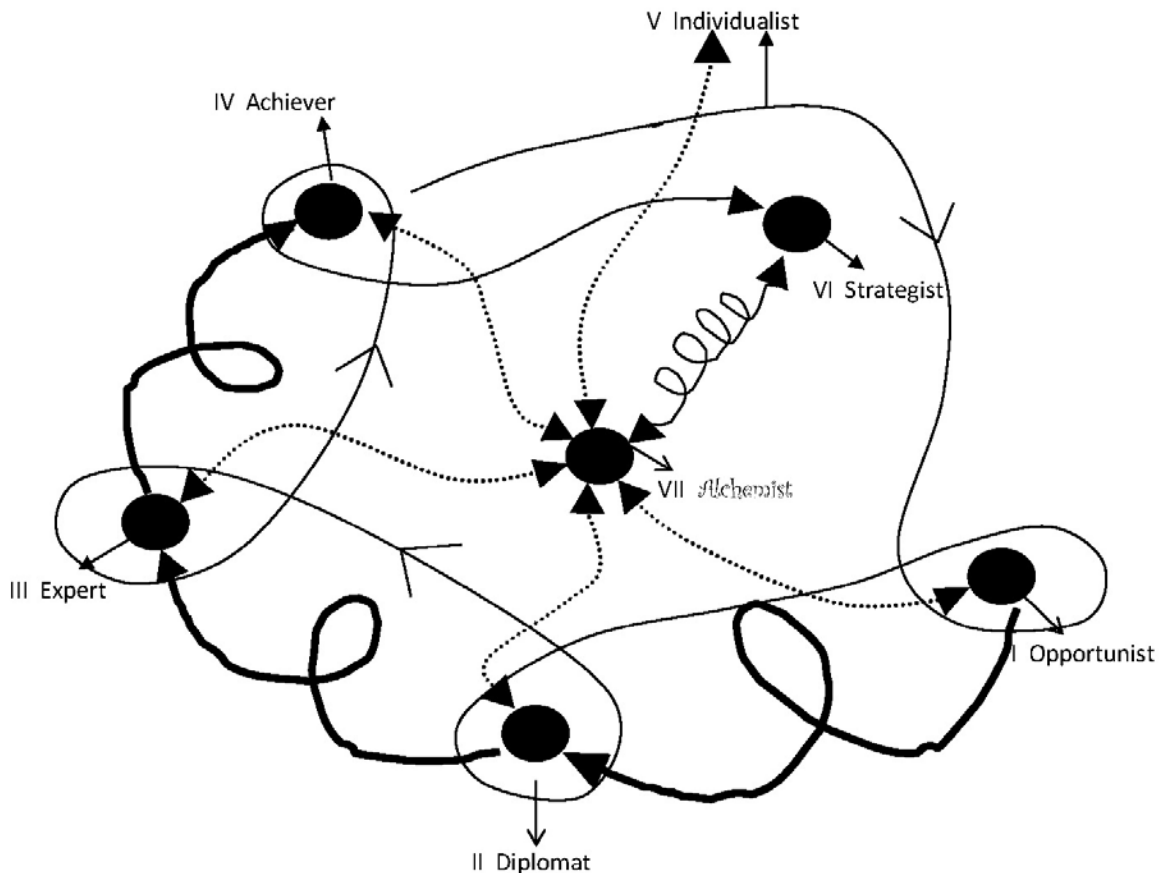


Figure 1. A Quasi-Performative Appreciation of the Dynamics and Simultaneity of Different Action-Logics

When we are in interaction with one another and simultaneously seeking to determine to what degree we are hearing or telling truth or something as close to it as we can now get, or whether we are acting as effectively and/ or transformationally as we wish: A host of first- and second-person questions arise that simply don't arise in the paradigms of inquiry codified in twentieth century social science...

What kind of first-person awareness do I (or you) require in real time to continue thinking, acting, and perceiving "toward" my (your) objectives as I ordinarily do (or in a meandering, non-purposive fashion as I/you also often do)... while simultaneously registering the "shapes" of my thoughts, actions, and effects in an inquiring way that gives me the choice of changing the shape of my thinking, acting, and effecting in each succeeding moment? (Torbert, 1973; Varela & Shear, 1999; Velmans, 2000)

And what kind of second-person talking, listening, and non-verbal gesturing is required to invite others in the interaction to participate in this kind of second-person research/practice that permits the interacting group to move "forward," while simultaneously having the choice to re-vision its aims, or to restructure itself, or to adopt new tactics in each succeeding moment? (Argyris, 1993; Isaacs, 1999; Torbert, 1976, 2000b).

Also, how does the *propositional* knowledge of third-person inquiry and action (e.g., this article) relate to and encourage or discourage the *experiential* knowing of first-person research/practice and the *presentational* and *practical* knowing of second-person research/practice and vice-versa? (For detail on these four types of knowing, see Heron, 1996; Reason, 1995).

Foreground - Taking the Action Turn

When a given person takes the foregoing questions seriously and discovers a wish to become a disciplined first-, second-, and third-person research/practitioner... S/he may enter any number of first-person disciplines, such as schools of meditation (Taoist, Buddhist, Hindu, Gurdjieffian, Quaker, Sufi, Jesuit, Hassidic etc.), in order to receive guidance in first-person research/practice (Alexander & Langer, 1990; Anthony, Ecker & Wilber, 1987; Chandler, 1991; Gendlin, 1981; Ouspensky, 1949; Torbert, 1973; Trungpa, 1970; Wilber, 1998).

S/he may also enter any number of second-person research/practice schools more or less simultaneously (e.g., therapy, psychodrama, Tavistock group relations conferences, t-groups, a woman's circle, a men's group, action science study groups, etc.) (Argyris, Putnam & Smith, 1985; Bion, 1961; Isaacs, 1999; Schein & Bennis, 1965; Sedgwick, 1999; Truax & Carkhuff, 1967).

And s/he may enter any number of third-person academic disciplines (education, management, philosophy, etc.) in a university.

Rarely, however, are the relationships among the first-, second-, and third-person aspects of the work well articulated. For example, this author spent some years simultaneously:

- 1) in a first-person research/practice school (the Gurdjieff Work) in which *not expressing negative emotions* was an explicit injunction and exercise;
- 2) in a second-person research/practice school (the Bethel National Training Laboratories) in which *expressing negative emotions passionately but non-evaluatively* was an explicit exercise; and
- 3) in a third-person research/practice setting (a PhD program) that did not address first- and second-person research practices at all as legitimate research methodologies in any of its methodology courses.

Because of experiences like this, before a person goes very far pursuing all three types of research/practice at once, s/he will realize, implicitly and intuitively, if not explicitly and intellectually... that the scale of learning to which s/he is committing... embraces, not just incremental, single-loop feedback that influences one's choices of behavior in specific situations in order to reach whatever specific goals one may have. Learning to interweave the subjective, the intersubjective, and the objective aspects of inquiry and action also embraces double-loop feedback that repeatedly transforms the overall action-logic through which we interpret and act in the world. Furthermore, this scale of learning includes triple-loop feedback that revivifies and reconstitutes the breadth and depth of our moment-to-moment attention (thereby increasing our awareness of the still vaster volume of inchoate, implicit possibilities and incongruities in each moment). (For different but related treatments of single-, double-, and triple-loop learning, see Bartunek & Moch, 1987, 1994; Nielsen, 1996; Starr & Torbert, 2005; Torbert 2000b; Torbert & Fisher, 1992; also, Table 1 gives an indication of when in the course of human development action-logics gain the capacity to digest these different types of feedback and potential learning.)

Analogous scales of potential learning can come to characterize one's second-person relationships with family, friends, and colleagues, as well as one's third-person relationships as a member of multiple organizations, ethnic and language groups, spiritual traditions, or professions.

In other words, a scientific paradigm such as Collaborative Developmental Action Inquiry that aims at integrating first-, second-, and third-person research/practice is equally open to all adult human beings, though, obviously, adults who are already heartfelt and disciplined practitioners of any number of schools of first-, or second-, or third-person research/ practices are initially likely to pick up the overall CDAI approach more quickly. More particularly, persons already engaged deeply in first- or second-person research/practice are more likely than the average person (and more than Ph.D.s who have no explicit first- or second-person research/practice) to be attracted, rather than initially threatened, by the following implications of the CDAI paradigm. First, that each CDAI practitioner faces unforeseeable personal transformations... Second, that s/he is invited to engage in relational transformations with friends and work peers... Third, that his or her own development and that of the organizations s/he belongs to will be supported by taking leadership roles, by writing to be read and critiqued by others, and by generating and attending to measures of the relative efficacy of one's own and one's organizations' performance... Fourth, that personal and organizational development are supported by increasingly exercising mutually-transforming power and inquiry in preference to unilateral power... Fifth, by a deepening search to act increasingly in ways that reverberate as timely across spatial and temporal scales... And, finally, by the gradual realization that the

question of what constitutes timely action and interaction in any current situation can never be validly solved once and for all for oneself or others, but rather at best grows more engaging of each inquirer and each community of inquiry.

Consider in this light, for example, Socrates' development from soldier ... to later doing civic duty as a citizen judge... and still later to becoming a kind of street philosopher who died for his dedication to inquiry.

Socrates' living inquiry led him from objective manual labor as a soldier who in war protected his student, Alkibiades, from death... through intersubjective emotional work as a citizen-judge... to his late-in-life subjectively-defined role as a sort of wandering minstrel – not, like the blind seers Homer or Teiresias, wandering across the countryside, telling stories from long ago, but rather wandering about the city gyms and markets, asking questions within the city of Athens, as it was at that moment: losing the Peloponnesian Wars to Sparta, less than a generation after having been, in Pericles' words “the School of Hellas.”

All this Socrates did, and it unforeseeably led to his going to jail as a very old man. He had killed no one, stolen nothing, done no violence of any kind, nor any kind of injury to any one individual's reputation (though he may have punctured the false self-esteem of a few). He had done no worse, let us say, than the comedian Aristophanes did to him in his comedy “The Clouds...” nor no worse than the tragedian Euripides' did to Aristophanes in twisting his (E's) comic attack on him (A) into “The Bacchae.”

Once in jail, Socrates' friends arranged the not-unusual opportunity for him to escape into exile, but, through the action inquiry of his final conversation with his friends, he determined not to leave the civil jurisdiction of Athens despite the possible injustice done him by the city he loved. His decision to drink the hemlock when he did, rather than accept his friends' offer to help him escape from jail, was an instance of action inquiry so vulnerable and so transformational that it resonated as timely across his roles as mentor, friend, and citizen, as well as across the ages, repeatedly raising the question for new generations who read Plato, *“What kind of inquiry throughout our lives can generate timely integrity, mutuality, and sustainability?”*

The First-Person Voice Describing First-person Action Inquiry Practice

If the reader turns back through the foregoing several pages, you will find a number of instances, such as the question just before this section, where the author has used italics. The italics are meant to capture sentences that are in more of a first-person voice than in a third-person voice. Thus, the question just above is a first-person question for the author, and he is also exploring whether it resonates as a question that at least some readers are concerned with for themselves.

I am now going to speak with you, dear readers, in my first-person voice just a little, in order to share a piece of writing by my friend Peter Reason, with his kind permission, in which he

illustrates the use of first-person voice to describe an example of his first-person research on his first-person practice:

Freefall carving

I have been curiously wondering why some pieces of writing don't "work" for me. I have a sense of when I have dropped into the freefall mode these days, as I feel a sense of calm and spontaneous deliberateness, which sometimes just doesn't seem to be with me.

I noticed a similar kind of feeling as I started woodcarving again: freefall writing (Turner-Vesselago, nd: see also Goldberg, 1986) is all very well, but since I spend so much of my time writing and reading, I do find my eyes get tired and I simply have enough of words. This week I picked up some of the carving pieces that have been around all summer while I have been busy with the boat—a bowl which Steve turned for me on his lathe, leaving a blank of wood around the rim for me to carve oak leaves into; and a green-man candlestick which I started for Sarah and put aside in some disgust.

That disgust was because it was not perfect. I felt I hadn't done the research, got a clear image in my mind as to what I was carving, and in particular hadn't studied the kind of leaves I was building into his face. Elizabeth said to me, "I like that green man, it's ok," so I took it up and looked at it with some renewed affection. Most of the face and the sides of the head have been roughed out so you can see the features and how the leaves sprout and spread around, it just needs the design finished at the back, where the leaves from each side will meet, and then it needs careful finishing and tidying up.

So I took my pencil and boldly drew some outline leaves, following the kind of tri-foil pattern I have been using, thinking more about how the individual leaves would overlap rather than if they were "correct" as leaves. I cut around the design with the v-tool, getting a feel for how each leaf fitted within the curve of the wood and how it might come forward or fall back in relation to its neighbours. And I cut out some of the background, noticing how boldly I was cutting down the edges of the pattern and moving the gouge round to chop out quite big chips of wood. I felt almost a delight at holding the carving gouge in one hand, the round mallet in the other, having pulled my carving chops out from under the bench and dusted them off. I fell into the design without anxiety, with a positive pleasure at the feel of the wood under my tools.

So to chop down along the edge of a leaf, feeling the way the gouge enters the wood, noticing the different quality as it enters softly, squishily, when along the grain, firmly and soundly when across the grain, and harshly and unpredictable at that knot which sits in such an awkward place. My hands, my whole body, notices this feel, this communication almost, between gouge and wood, so that carving in freefall mode simply adjusts itself as if it needs little attention from my conscious mind—indeed it does need little attention from my conscious mind.

But mind does come into it as well! When I was carving the rim of oak leaves around the bowl, following Elizabeth's design, I realised that I was wasting time by cutting the details of each leaf before I had carved out the planes on which they were to sit, with each leave

overlapping the previous and underlapping the next. So I chose consciously to cut over and destroy the design details in order to do that, choosing a strategy and then falling into the skill of practice, coming out again to assess what I had done and re-establish the design, so I can now fall back into the skilled based cutting of the leaves. It IS like freefall writing, in that there is a time for the mind to choose (“I will sit down for ten minutes to write”) and a time to allow the writing/ carving “without a parachute” to take itself forward (Reason, 2001).

Clearly, the point in conducting such first-person research/practice and then writing about it in this way is not to generalize some “true answer” about practice to everyone else, but rather: (a) to make the activity more pleasurable; (b) to make one’s work more effective or beautiful or integral by bringing a better attention to it; and/or (c) to invite other first-persons (you, me) to consider engaging in such first-person research/ practice themselves. In first-person research/practice one attempts to generalize, not the outcomes of the search to everyone else, but rather the practice of such research to more times in one’s own life.

Another point that Reason’s report of his self-observation of his carving makes clear about first-person research is that although it can concern the past (e.g., writing autobiographically about oneself in an inquiring mode), as does almost all formal third-person scientific research, it is perhaps most at home as research on one’s present activity that can feed back instantly on one’s actions. (First-person research on the future is also possible [e.g., intentional “dreaming” about wishes for the future, or role playing possible ways of conducting an important upcoming conversation].)

Second-Person Research Voices Describing One Another’s Second-Person Practices

An example of second-person research voices occurs if team members are asked by an interviewer to assess each other member’s performance, and if each person receives as feedback, not some average number that masks the range and quality of different perspectives on his or her performance, but rather the actual phrases different people say (typically without the names of who said what). Obviously, such feedback may contain significant contradictions and incommensurabilities among the voices. For example, Jack, a COO, received these comments from others among the seven-person senior management team: “Jack is good on the budget and at talking and selling. He’s not good at personnel and unfortunately he thinks he is.” “Good relationship with George (the CEO) which helps the company.” “When Jack is upset in a meeting, he tends to be patronizing or to avoid the issue.” “He sometimes unloads on others, gets hysterical.” “Jack sometimes acts like an unsure lover – he laughs too loud at George’s corny jokes.”

From a third-person, objective point of view, such results would seem to signal a lack of reliability among the raters and to reduce the validity and meaningfulness of the data. But from a second-person, intersubjective point of view, the quotes communicate the actual divergent effects of Jack’s actions on his significant others (of course, someone may be lying, or someone may later reconsider). The dilemma the recipient of this inconsistent feedback faces in determining how to act more effectively as a team member in the present and future is a real one.

(Basically, it is a sign that no single-loop change in behavior will please all; rather, a double-loop change in strategy or action-logic used in the present [and/or a triple-loop change in the kind of attention the practitioner pays to interactions with other team members] is called for.)

This *second-person research on first-person practice in the past* can transform into *first-person research on first-person practice in the present and for the future*, if the condition is created whereby the team members are invited (and at least some freely choose) to discuss what implications for their future action the (anonymous) feedback they've received suggests. In Jack's case, when he took the lead in revealing the feedback he had received to the rest of the team, his initiative, his openness to the data, and the subsequent conversation permanently transformed his tentativeness and shiftiness in this setting, as well as his actual relationship to each other member of the team and the ethos of the team as a whole. In a word, what this specific example of research/practice generated, and what second-person research on second-person practice in general seeks to generate, is increased openness to difference and increased *mutuality* (Isaacs, 1999; Hartwell & Torbert, 1999).

What this example also begins to suggest is that there are many different types of possible and complementary social research. Indeed, there are at least 27 distinguishable types of research possible in any social situation: first-, second-, or third-person research on first-, second-, or third-person practice in the past, present, or future ($3 \times 3 \times 3 = 27$) (Chandler & Torbert, 2003). The developmental path through the octave of personal, organizational, and scientific action-logics is a hypothesized sequence through which human, intelligent systems can question the assumptions on which their current action-logic is based and transform toward action-logics that progressively make fewer assumptions and progressively deepen their capacity for listening into the dark inquiringly more of the time.

Using CDAI Theory in First- and Second-Person Research/Practice

The following case study (in some ways condensed and in some ways expanded from Fisher, Rooke & Torbert, 2000) attempts to breathe a little more life into Table 1 and Figure 1 and the question of how to test CDAI theory in the midst of action. The case study, told in a third-person voice, describes an organizational consultant cultivating a special first-person attention in the emerging present, much like the woodcarver in the earlier story, and then using CDAI theory in the midst of second-person practice with an organization. The case shows the consultant exploring in a short ten-minute break toward the end of his first day at the company: (a) how each senior manager and the organization as a whole *descriptively* reflects CDAI theory; (b) whether using the theory *normatively*, by inviting each person and the organization as a whole to experiment with the successive developmental action-logic, catalyzes change and transformation toward greater awareness, mutuality, and sustainability in himself, others, and the organization; and (c) whether using the theory *analogically* across the scales of the individuals, the intervention event, and the organization pinpoints a particularly powerful type of collaborative leverage for transformation available at this particular time.

Here is how the story evolves:

A small software company has burned through its initial round of venture financing, with net revenues for its products not yet foreseeable on the horizon. The partners are seeking a second round of venture capital, and everybody at the company knows they must make a breakthrough in marketing and sales. Yet, this “bottom-line” negative feedback alone, as stark as it is, is not propelling the company into a new operating pattern.

An organizational consultant who takes a CDAI approach is invited to help the company over a two-day period. He approaches the assignment with the sense that he must discover what disharmonies among the corporate dream, the leadership’s strategies, and the day-to-day operations account for the company’s continuing losses. But more than this, he must discover a positive way to reframe or restructure the situation with the leadership and company members, so that they become motivated to correct the disharmonies.

The consultant interviews the top management (the president and the three vice presidents for production, marketing, and sales) of the computer software company, which numbers 35 employees in all. The president is a generation older than the three vice presidents, and the company is a partnership between the president and one of the vice presidents. Together, the two of them developed the initial product.

In the following three years, the company has produced a large number of high-quality products, but they are not selling well. The consultant discovers numerous problems that have remained unresolved for a long time. Neither mission nor market is well defined. Pricing is a subject of acrimonious controversy. Employee morale is fragile because it is unclear whether competence or cronyism is the basis for rewards. Decisions are not driven by any internal sense of mission; they are made only when situations deteriorate into external emergencies.

The bottleneck in decision making appears to be the relationship between the two partners. They respect one another and attempt to share responsibility as though equals. But they repeatedly fall prey to differences in age, formal role, and managerial style. The president plays the role of optimistic, benign, absent-minded father. The vice president plays the role of pessimistic, sharp, rebellious son.

Having interviewed the senior managers individually during the first six hours of his two-day visit, the consultant is next slated to meet with the two partners to set the agenda for the next day’s senior management retreat. But based on what he has heard, the consultant fears that the agenda-setting session may itself fall prey to the partners’ well-intentioned wrangling.

In his 10-minute walk around the outside of the building prior to the session, the consultant engages in a first-person research/practice of intentionally bringing his attention first to his breathing and then, following that, to the vividness of the outside world, then to his feelings, and, only when he has established an ongoing circulation of attention, to what he now knows about the company. First, he becomes clear that the partners’ pattern of behavior must change before any other productive decisions are likely. Next, he applies developmental theory to the individual partners, to his two-day intervention itself, and to

the company as a whole, to help him generate design ideas for his meeting with the partners... only moments away.

Applying the developmental theory to each of the partners as individuals, the consultant estimates that the vice president is in transition from Expert to Achiever, both itching for and resisting the true executive responsibility that a person at the Achiever action-logic relishes. The consultant estimates that the president is in transition from Achiever to Strategist, ready to give up day-to-day executive responsibility in favor of an elder statesman role of mentoring his junior partner and godfathering the company's research and development function (indeed, the president has spoken wistfully of his preference for the VP R&D position).

Applying the developmental theory to the company as a whole (refer to Table 1), the consultant sees the organization as spread-eagled across the fluid, decentralized Investments and Experiments action-logics, still living off venture capital on the one hand, while on the other hand experimenting with a whole line of products. At the same time, the company is failing to "bite the bullet" and meet the limiting, centralizing, differentiating demands of the Incorporation action-logic – the demand, in short, for net revenues.

Applying the developmental theory to his own two-day visit, the consultant interprets the initial interviews as the Conception action-logic of the intervention. In this light, the agenda-setting session with the two partners may represent Investments – in particular, how much investment each of the three leaders in this meeting is willing to make in truly experimenting with new ways of working together. If so, the question is how open is the consultant himself to restructure his consulting style at this point from a more passive, receptive interviewing process to a more active, intervening process that highlights both the consultant's own investment in the process and the new investment the partners must be willing to make in decisiveness, if they are to achieve the major changes necessary in the organization as a whole. Looking ahead to the following day, the consultant also feels that binding decisions need to be made there and then in the spirit of the Incorporation action-logic. Analogically, the two partners, the company as a whole, and the senior managers and the consultant must act conclusively in the next day.

In this Incorporation action-logic spirit, the consultant first decides to recommend at the upcoming agenda-setting session that only the partners and the consultant participate in the next day's retreat and that whatever decisions the partners reach the next day be put in writing with definite implementation dates. As for the agenda-setting session itself, the consultant's reasoning leads him to ask how he can reframe the partners' expectations and pattern of behavior from the very outset of the agenda-setting session. In their initial interviews earlier in the day, both partners have used the image of ballots to describe their relative power within the company. The president, referring to their equal salaries and to his style of consulting his partner on all significant decisions, speaks of the partners as holding "ballots of the same size" in company decisions. The vice president, however, spoke of the president as having the larger vote. The consultant now reasons that if the two switch their formal roles, at least for this one day, the (erstwhile) president should still see their votes as equal, while the (erstwhile) vice president should see his vote as having

become larger. Thus, the twosome should be more powerful, especially since the junior partner will now be in a proposing role rather than an opposing role. Moreover, the new roles should be more appropriate to each partner in terms of helping each to move to a wider action-logic. More immediately, the mere fact of having the two officers reverse roles for the agenda-setting meeting and the day-long retreat should alter their usual dynamics and put them into the serious-role-playing posture of simultaneous rehearsal and performance conducive to action inquiry. (All these images occur in much less time than it takes to read about them in this paragraph.)

Of course, the consultant himself will be in a similar posture as he makes this unexpected suggestion (and of course the partners won't necessarily agree!). As he walks into the room where he and the partners will now be meeting, the consultant is reminded of the analogy between the kind of Incorporation action-logic initiatives he is now planning and the hexagram in the Chinese *Book of Changes (I Ching)* named *Biting Through Energetically*.

He arrives two or three minutes early, viewing himself as the host of this meeting, just as the partners are his hosts at the company. It can be a meeting of three peers. He arranges the three chairs in a triangle, without a table between them, and sits, facing the door through which the partners will enter. Leaning forward in a relaxed position, with his hands on his thighs, he exhales thoroughly, then draws in his hara three or four times before his next longer and deeper and quieter inhaling, followed by an equally long exhale, and now perhaps 7 or 8 clenchings-in-of-his-hara, and a third turn. *His* challenge in this meeting, he realizes, is to "bite through" and invite the partners to *collaboratively* "bite through" the norms that paralyze their action-taking capacities.

The consultant begins his feedback/agenda-setting session with the two partners by proposing that the vice president either resign or become president. This puts the vice-president in the action role right away, rather than his usual role of reacting to the president. Although quiet, the president seems to smile slightly, ready to play whatever this game may be. On the other hand, true to his customary "opposing" role, the vice president objects to "rehearsing" as president. "It's fake." "Oh, you don't believe you could be or ought to be president?" asks the consultant. After considerable further probing by the vice president, the two senior officers agree to play this serious game.

Now the vice president (in the role of the president) acts decisively rather than reacting combatively. He and the consultant propose various changes, with the president (in the subordinate role) making constructive suggestions and raising questions. The two partners reach written agreement on six major organizational changes the next day. The first of these is implemented at lunch that day. The vice president for sales is invited to join them. The partners discuss the major changes they are considering, and ask him to accept a demotion. He agrees, expressing both his disappointment that he has let the company down and his relief that his duties will be more circumscribed (why this turns out so well is explored further in the version of this case presented in Torbert & Associates, 2004). A month later, all the changes have been implemented. Two months later, the company completes, six months ahead of schedule, a first-of-its-kind product for a definite and large

market. The company fails to get a second round of venture financing, but sales revenues begin to exceed costs for the first time in the company's history due to the new product. In the meantime, the vice president decides *not* to become president. The president stipulates that henceforward he will draw a higher salary and exercise the managerial authority of CEO on a day-to-day basis.

Another three months later, the vice presidential partner decides he wishes to become president after all and negotiates the change with the other partner.

This case illustrates how CDAI becomes a first-person research/practice for a consultant engaged with his client and how that, in turn, generates a second-person action inquiry process among the senior members of a company who, in turn, transform the way the company operates, even though the partners and other members of the company themselves, in this case, remain unaware of developmental theory. CDAI theory predicts that a consultant's intervention (or a CEO's leadership) is increasingly likely to encourage organizational transformation if the interventionist is operating at the later action-logics (Strategist, Alchemist, Ironist) where one engages in action inquiry increasingly intensively and becomes increasingly open to double- and triple-loop feedback. (In this case the consultant was measured at the Alchemist action-logic.)

Of course, the claim that the company has transformed is based on rather impressionistic (but also, we argue, relatively plausible) bits of data: generating net revenues through sales for the first time; and more sharply differentiating, assessing, and adjusting leadership roles. Moreover, because this is only one case, we have no statistical way of testing the general validity of our causal attribution: that the consultant's intensive use of both the theory and practice of CDAI at the Alchemist action-logic is the independent variable that leads to the eventual organizational transformation. This hypothesis we became able to test statistically sixteen years later after an eight-year study of ten organizations during which the action-logics of all ten CEOs and all four consultants were measured, as well as the transformations (or lack of transformations) in each organization. We now turn to a description of that study.

A Quantitative, Third-Person Study of Organizational Transformation in Ten Cases

The foregoing consultant and three others each engaged for many years in various forms of first- and second-person research/practice of the sort described in the prior example prior to taking organizational consulting roles with the ten organizations included in the third-person study presented next. This study was first published in clinical, case detail in Fisher & Torbert (1995), then with statistical results in Rooke & Torbert (1998), and most recently with an expanded analysis, including new clinical and the quantitative results in Torbert & Associates (2004).

Here, we offer a brief overview of the quantitative study in particular, first as an exemplar of how first-, second-, and third-person research/practices can mutually interweave, and second in order to help explain why triangulating in this way is likely to explain more of the empirical variance than third-person-research-only studies. This study tests the empirically confirmable or disconfirmable proposition, derived from developmental theory (Torbert, 1987, 1991), that only

persons who transform to the Strategist action-logic or beyond reach the capacity to reliably support organizational transformation. This is so because only at these late action-logics do people regularly (and more and more intensively) inquire about and transform their own action for greater efficacy, and also because only at late action-logics do people seek to exercise shared-commitment-enhancing, mutually-transforming powers, not just unilaterally-forcing types of power that gradually erode others' trust and commitment.

To determine the center-of-gravity action-logics of the key individual players, the 10-organization study uses one of several measures derived from Jane Loevinger's Washington University Sentence Completion Test and adapted to work settings and leadership issues by Cook-Greuter and Torbert. These three closely related measures are Cook-Greuter's (1999) Mature Adult Profile, Harthill's Leadership Development Profile, and Torbert's Global Leadership Profile (see Herdman & Torbert, 2010, and Torbert & Livne-Tarandach, 2009 for reliability and validity studies of the measure). In the 10-organization study, five of the ten organizations' CEOs are measured as performing at relatively early action-logics (1 Diplomat, 2 Experts and 2 Achievers). It measures the other five CEOs and three of the four consultants as performing at the Strategist action-logic, and the fourth consultant as enacting the Alchemist action-logic. Table 3, below, summarizes the data from the study.

The four consultants worked in different combinations with the ten organizations for unusually long periods – an average of 4.2 years. Using various additional data sources, including organizational growth and profitability, customer and employee satisfaction, reputational measures, archival data, and “thick descriptions” (Geertz, 1983) of longitudinal cases, as well as a measure of organizational transformation to be described, the study calls itself a “retrospective field quasi-experiment” (Rooke & Torbert, 1998: 16).

Business and reputational measures showed that seven of the ten organizations improved dramatically during the intervention/studies, while the other three declined either mildly or dramatically. Based on the thick descriptions of the individual cases, three raters achieved perfect reliability (1.0) in scoring whether each organization transformed, remained at the same organizational action-logic, or regressed (they also achieved .90 reliability in agreeing how many transformations occurred in each organization). During the ten consulting interventions, the seven economically-and-reputationally-successful organizations all transformed (sometimes more than once) to later organizational action-logics. The three remaining organizations either remained at the same action-logic or, in one case, regressed. The initial main findings were that: (a) The five CEOs at the Strategist action-logic or beyond all supported positive organizational transformations and increased business success; and (b) by contrast, three of the five CEOs at earlier action-logics were associated with lack of transformations and even organizational regression and business failure.

The CEOs' action-logic accounted for a statistically significant 42% of the variance in whether the organization positively transformed (Spearman's rank order coefficient $\rho = .651$, one-tailed $p < .05$). Cohen (1983) classifies a “large effect size” as one that accounts for 25% of the variance in a correlational test (that is, $r = .50$). Thus, a test that accounts for 42% of the variance, as this one did, represents an unusually robust empirical finding. Moreover, if one adds together the action-logic scores for the CEO and the lead consultant in each effort at

organizational change the resulting correlation accounts for 59% of the variance at the .01 level of significance (Torbert & Associates, 2004). The increase in percentage-of-the-variance-explained in the later analysis is due to the fact that the one Alchemist action-logic consultant led the only two engagements when pre-Strategist CEOs were associated with positive organizational transformation. In short, in these ten cases the developmental action-logic of the CEOs and their lead consultants emerged as the single largest cause in whether or not the organization transformed.

The foregoing study appears to offer powerful, quantitative confirmation for CDAI theory, practice, and method. But no critical reader will want to accept such results at face value. The critical reader will wish to inquire in greater detail how this “small-*n*” study coped with various potential threats to the Empirical Positivist, third-person, quantitative conception of validity-testing, and how it holds up against additional and different standards of validity associated with first-, and second-person research/practices, that we will presently adduce from the varied and dispersed social science literature on validity (Scheurich, 1997).

Table 3: Ten Organization Study Size & Type of Organization, Consultant Relationship, CEO Developmental Stage, and Organizational Transformation

Type of Org'n (For-profit/ Not-for-p)	Size (# of emplo yees)	Length & Type of Consulting Relationship	Lead Consultant's Action-Logic	CEO Action- Logic	Organizational Transformation? (+ =yes; 0 =no change; - =regression)
1. Not-for-profit	325	5 years consulting & board	Alchemist	Strategist	+ from conception to collaborative. inquiry
2. For-profit	43	6 years consulting & board	Alchemist	Strategist	+ from incorporation to collaborative. inquiry
3. For-profit	10	7 years consulting & management	Strategist	Strategist	+ from conception to experiments
4. For-profit	732	15 months consulting	Strategist	Strategist	+ from systematic productivity to collaborative. inquiry
5. Not-for-profit	627	6 years consulting & management	Alchemist	Strategist	+ from experiments to collaborative inquiry
6. Not-for-profit	847	5 years consulting & board	Alchemist	Expert	+ from experiments to collaborative inquiry
7. For-profit	183	2 years consulting	Alchemist	Achiever	+ from experiments to systematic productivity
8. For-profit	1019	2 years consulting	Strategist	Achiever	0 systematic productivity
9. Not-for-profit	584	4 years consulting & management	Strategist	Achiever	0 systematic productivity
10. Not-for-profit	481	4 years consulting	Alchemist	Diplomat	- regression from collaborative inquiry to incorporation

Testing the Third-Person, Internal and External Validity of the 10-Organization Study

Validity criteria that test the third-person generalizability of empirical findings "after-the-fact" are enumerated and described relatively exhaustively by Cook and Campbell (1979). Their conceptualization of validity has two general components, *internal validity* and *external validity*, defined as follows:

Internal validity refers to the approximate validity with which we infer that a relationship between two variables is causal or that the absence of a relationship implies the absence of cause.

External validity refers to the approximate validity with which we can infer that the presumed causal relationship can be generalized to and across alternate measures of the cause and effect and across different types of persons, settings, and times. (Cook & Campbell, 1979, p. 37)

Cook and Campbell (1979) list 19 different potential threats to internal validity and 13 different threats to external validity. They suggest that researchers focus on the threats most likely to have a significant effect on the validity of their work. We will, therefore, here address only the most salient threats to the validity of the Rooke and Torbert (1998) study. (In Cook and Campbell's terms, the study is best described as a *nonequivalent control group quasi-experimental design*, whose "treatment" is the presence and action of a CEO and lead consultant at the Strategist action-logic or later and whose "effect" is organizational transformation.)

The most significant threats to internal validity in such a study are the *interaction of selection and maturation*, *instrumentation*, *local history*, and *threats to statistical conclusion validity*. And the most significant threat to external validity comes in the form of *insufficient construct validity* (Cook & Campbell, 1979). Another important threat to the external validity of the study would appear to come from the *small sample size*.

Let us start at the beginning. The internal validity threat of selection-maturation would arise in the Rooke and Torbert (1998) study if Strategist action-logic CEOs happened to be associated with types of organizations that had growth patterns systematically not encountered by the types of organizations headed by CEOs at earlier action-logics. In such a case, it could well be that extraneous causes, not CEOs' and consultants' action-logics, would account for the organizations' transformation. In the Rooke and Torbert study, however, there was considerable variety: 1) in the size (10-1,019 employees, average=485); 2) in type (5 for-profit / 5 not-for-profit); and 3) in line of business (investing, automobiles, energy, consulting, education, health care). Moreover, the successes and failures in organizational transformation are not associated with any of these variables (e.g., two of the three organizations that failed to transform were not-for-profits, but three of the five not-for-profits succeeded in transforming).

The threat of *instrumentation* arises when there are scaling problems with the measurement of the dependent variable (organizational transformation, in this case)... such that changes are more likely to be measured in one group than the other. Looking, we find differences in the

baseline action-logics of organizational development of the different organizations, and we find that the three organizations unsuccessful in transforming were among the four organizations in the study that began at the Systematic Productivity action-logic (see Table 2). At first, this seems to suggest that the coding scheme the raters employed may not be sensitive to transformations above the Systematic Productivity action-logic, or that such late-action-logic transformation is much less likely to occur than transformations through the earlier action-logics (and all this could be explained as statistical regression toward the mean). However, a closer look reveals that six of the seven organizations that were coded as having transformed actually progressed to the Collaborative Inquiry organizational action-logic (beyond Systematic Productivity), thus showing that the dependent variable was in fact sensitive to such transformations and that they do occur with some frequency.

Another credible threat to internal validity, *local history*, is troublesome if there are events that only affect the experimental group and not the control group. Here, there were ten experimental groups of somewhat varying developmental configuration and no control groups, one might say. Or, one might say, there were five experimental groups (the five organizations with Strategist CEOs) and five non-Strategist-led control-group organizations. As far as we can tell, this threat of *local history* is substantially eliminated by the variety in geography (multi-national), industry (six industries), and market niche of the ten organizations in the Rooke and Torbert (1998) paper.

Lastly, *threats to statistical conclusion validity* also endanger the internal validity of studies in the Empirical Positivist tradition. Statistical conclusion validity concerns our ability to determine statistically significant (within a specified α level) co-variation between our independent and dependent variables (Cook & Campbell, 1979). In the focal study, the threats to statistical conclusion validity were minimized since the authors used the Spearman rank order test, which is the appropriate nonparametric statistical test, and found results that were statistically significant at the .01 level. (Note that nonparametric tests make fewer assumptions about normality of the distribution and interval distances between numbers, and that they are therefore less likely to make false assumptions.)

With regard to *external validity* of the measure of a person's leadership action-logic, Rooke and Torbert's (1998) detailed discussion of the history of reliability and validity studies of the sentence completion measure at that time, thus minimizing many of the threats to construct—and also, by definition, external—validity. A decade later, additional reliability and validity studies of the measure have further demonstrated its reliability and validity (McCauley et al, 2006; Torbert & Livne-Tarandach, 2009; Torbert et al, 2010).

The construct validity of the organizational action-logics can be claimed, less voluminously and less conclusively, on three grounds:

1. by the theoretical analogy between personal and organizational development (as shown in Table 1);
2. by the clinical usefulness of the developmental theory for organizations to the consultants themselves and their clients during their interventions (e.g., the consulting case offered

- above; see also Fisher, Rooke, & Torbert, 2000, chapters 8-10, for thick qualitative descriptions of numerous interventions using CDAI); and
3. by the high inter-rater reliability achieved by the three coders in this study (again, 1.0 on whether and if so, which way, an organization transformed; and .90 on the exact number of transformations in each case).

But what about the *small sample size* in the 10-organization study? Isn't that a huge barrier to claiming that the results are in any way externally generalizable to other organizations? (*It's always been amazing to me how it's the quant jocks that jump in with these objections first, even though they're the ones who ought to know better.*)

In fact, the answer is "No." The small sample size did introduce a slightly higher risk of a Type II error (falsely rejecting a valid finding), since the statistical power is slightly less than the conventional .80. But this small-sample-size effect would have affected the interpretation of the results only if a significant correlation had *not* been found. What a small sample that explains a high percentage of the variance indicates is how powerful a causal factor the independent variable is, for almost every recorded case must align with the hypothesis. Put differently, what an *n* of 10, accounting for 59% of the variance at the .01 level of statistical significance means is just the same as an *n* of 1,000 at the .01 level of statistical significance – namely, that the hypothesis is confirmed, with less than one in a hundred chances that the inference is in fact false. Put yet again differently, if the *n* had been 1,000 and the result had achieved the .01 level of statistical significance, then although the hypothesis would still be confirmed, the independent variable (CEOs' & consultants' action-logic, as measured by the LDP) might have accounted for a much lower percentage of the variance in the dependent variable and would therefore not have been demonstrated to be as powerful a causal factor as it has been demonstrated to be in this study.

At the same time, however, it is important to remain cautious about the generalizability of the findings in two regards. Since the largest business unit in the study had 1,019 employees, we cannot know whether the findings will hold for Fortune 500 size. Also, the organizations in this study, whether for-profit or not-for-profit, are all productive, economically-oriented, work organizations; hence, the findings may not be representative of all types of organizations (e.g., spiritual organizations, temporary political campaign organizations, families, or government agencies). On the other hand, the results should be generalizable to the more than 95% of business and competitive not-for-profit organizations that have 1,000 employees or less.

Other Third-Person Validity-Enhancing Criteria

Cook and Campbell (1979) are not the only authors who have addressed the validity of third-person research. For instance, Lincoln and Guba (1985) have advocated for methods that are likely to positively increase the validity and trustworthiness of objective social science, rather than explicating lists of threats to be minimized. The qualitative validity-enhancing methods that Lincoln and Guba recommend include:

1. conducting prolonged engagements;
2. engaging in persistent up-close observation; and
3. triangulating sources, methods, and investigators.

Let us review briefly how the Rooke and Torbert (1998) CDAI action/ research in the 10-organization study fares in these terms.

1. the engagements were certainly prolonged (4.2 yr.s on average), with
2. persistent observation (the four participant/ consultant/ researchers intensively engaged at least the CEOs and the top management levels);
3. the researchers triangulated methods (by using an extensively validated psychometric measure to test the developmental stage of the CEO and many members of the top management teams and the consultants as well as using wide-ranging business indicators, interview data, and meeting-behavior data to make assessments about organizational development and success. The use of multiple coders who displayed a high level of inter-rater reliability also increased the credibility of the assessments. In terms of the 27 “flavors” of action research [Chandler & Torbert, 2003], the organizations that successfully transformed engaged in as many as 15 different kinds of action research).

These validity-enhancing postmodern interpretivist features of the study suggest that it produced credible findings and predictions (reinforcing the empirical positivist validity test findings described in the previous pages). Note that the researchers’ intimacy with the data is generated by the fact that they included themselves within the experiment and collected data on themselves as well as the other subjects.

First- and Second-Person Validity Testing and Enhancing Methods Applied to the 10-Organization Study

While Lincoln and Guba (1985) do address the objective, third-person aspects of qualitative validity, they also emphasize the techniques used to increase the trustworthiness of research by attending to the second-person aspects of research. Two additional, key techniques that they propose are (a) *peer debriefing* among researchers as a qualitative external check on the inquiry process; and (b) *member checking*, or direct testing of findings and interpretations with the human sources from which they have come. In Rooke and Torbert’s (1998; Torbert & Associates, 2004) 10-organization study, we find a high degree of both *peer debriefing* and *member checking*. By engaging each other as mutual co-researchers, the four consultants would repeatedly (at every possible break when directly engaged with clients) seek each other’s (dis)confirmation of the validity of their actions. Moreover, *member checking* is a vital, ongoing feature of research in the CDAI paradigm. All senior management members in the ten organizations who agreed to take the developmental psychometric measure were offered feedback about the results, along with careful inquiry about the participant’s sense of the validity of the result (further *member checking*). Seven of the ten CEOs had estimated themselves at the same action-logic as the LDP found; the rest agreed after discussion and further clinical debriefings of later action episodes. In a later study, we offer an example of a case when member checking about the LDP rating led to a change in both the member’s estimate and in the researcher’s view (McGuire, Palus & Torbert, 2007).

More generally, theories related to first- and second-person research encourage on-the-spot and at-the-moment validity tests. Thus, the first-person theory of “four territories of experience” (Torbert 1973; Torbert & Associates, 2004) permits any of us to test how many territories of

experience our awareness is embracing (the outside world, our own sensations as we know them from within, our own thoughts and feelings, and the dynamics of the attention itself) anytime we choose to investigate. Likewise, the second-person theory of four distinct, but interweavable speech acts that generate increasing efficacy as they are interwoven permits any of us in conversation the potential to test which we are missing as we are speaking (the four speech acts are named framing, advocating, illustrating, and inquiring [Torbert, 2000b; Torbert & Associates, 2004, ch. 2]). (Argyris' version of action science [Argyris, 1993; Argyris, Putnam, & Smith, 1985] offers a challenging discipline for going beyond mere *member checking* to testing whether the entire quality of interpersonal dialogues is such as to increase or decrease the likelihood that one is learning the most significant valid information available. Currently, increasing attention is being paid to the validity of intersubjective, second-person, "during-the-act" research [Bradbury & Lichtenstein, 2000; Heron, 1996; Reason & Bradbury, 2001; Torbert, 2000b].

Let us explore further, into the realm of second-and-first-person criteria of validity. In her article "Validity after Poststructuralism," Lather (1993) introduces four additional types of validity that have implications for first-, second-, and third-person research/ practice. Lather calls these qualitative, Postmodern interpretivist ways of enhancing validity: *paralogical validity*, *ironic validity*, *rhizomatic validity*, and *voluptuous validity*.

Paralogical validity, according to Lather, requires the researcher to develop methods that help her "unlearn her own privilege" (Lather, 1993, p680) and be open to multiple interpretations from the audience. Here, Lather uses the Lincoln & Guba categories of "peer debriefing" and "member checking" that we have already discussed above; so we will take this criterion as having been met by the ten-organization study, without further discussion.

Ironic validity, according to Lather, problematizes the existence of "truth." It invites the researcher, writer, and readers to question the foundations of their epistemologies (their assumptions about what knowledge is and how to tell the difference between truth and error). For example, our two stories earlier (the 1st-person story of woodcarving and the 2nd-person story of consulting [told in a 3rd-person voice]), hopefully suggest arenas and voices for scientific truth-seeking that problematize the impersonal tone regulative of most of this article and of Empirical Positivist descriptions of studies in general.

In addition, developmental theory itself, properly understood, should problematize each person's sense of truth. For, in studying the theory (e.g., Kegan 1994, Torbert, 1991, Wilber, 1999) we come to recognize that, no matter what our action-logic, all our perceptions and conceptions are framed by assumptions that *only a minority of other people share*. How come any of us is so sure?

A third example of *ironic validity* is found in the hypothesis of the Rooke and Torbert (1998) study:

CEOs whose cognitive-emotional-sensory structure recognizes that there are *multiple ways of framing reality* and that personal and organizational transformations of structure require mutual, voluntary initiatives—*not just single-framed hierarchical guidance*—are more

likely to succeed in leading organizational transformation. (Rooke & Torbert, 1998); underline in original, italics added)

In other words, the ironic proposition of the ten-organization study is: leadership that relies primarily on unilateral causal power based on the leaders' "truth" is less likely to cause organizational transformation than leadership that "listens into the dark" beyond its current version of truth (because that leadership, based more on inquiry-in-the-present and mutually-transforming power than on unilateral power, is attuned to generating mutual causality and outcomes better than anyone's unilateral truth would have predicted at the outset).

Rhizomatic validity, Lather's third type of validity (in analogy with the underground stems and aerial roots of rhizomes), fits jigsaw-puzzle-like with the mutual-power idea just mentioned. *Rhizomatic validity* requires the maintenance of contradiction by a listening and a reportage that both reflects, and is itself an instantiation of, the unexpected emerging present in all of its multi-voiced contradictoriness. In the ten-organization study this form of validity was enhanced by interviewing all members of the senior management teams early in the consulting processes before the consultants developed other preconceptions, with feedback to each member shortly afterwards of the verbatim (anonymous) comments of his or her peers, so that each "heard" the raw, possibly discordant voices of all one's significant others. The teams were then offered a non-compulsory opportunity to reflect on that feedback with those same peers. Usually, the first to volunteer was the person who had received the most unexpected negative feedback. Thus, that person, usually the most discordant and disliked before, suddenly became the most transparent and vulnerable, therefore playing a big role in setting a new norm of testing differences of perspective early and often in the subsequent organizational transformation effort.

Yet another example of *rhizomatic validity* (and, more generally, of 1st- and 2nd-person research/practice written up for a 3rd-person audience) is the book *Action Inquiry* (Torbert & Associates, 2004). It is full of vignettes, analyses, and action experiments described *in the voices of many different protagonists holding many different interpretive frameworks* (different action-logics). Lastly, to pick an example closer to your (the reader's) current experience: we expect that different readers may be touched by different "moments" of this article, while feeling indifferent to, or alienated from, other sections... member check invited!

Voluptuous validity, Lather's fourth and final type of validity-enhancing method, *voluptuous validity*, increases when the researcher is both engaged and self-reflexive in the study, not distanced and detached. Indeed, Lather "goes wild" here, espousing such engaged and self-reflexive practice "to the point of leaky, runaway, risky practice" (Lather, 1993, p. 686). A neophyte musician is encouraged "to play the difficult passages and mistakes loudly," in order to hear the mistakes better and to learn faster. Based on the earlier example of freefall carving and writing, would you call those practices runaway, risky practices? (I might call them more self-reflexive, disciplined dances.) Would you say that the practice of the consultant in the case study of the software company presented earlier (e.g., when he asks the two partners to switch organizational roles) exemplifies risky, engaged self-reflexivity? In any event, the landscape and the writing style provided through first- and second-person verbal and written action research descriptions surely promise to be slightly livelier, or at least less dessicated, than the traditional third-person peer-reviewed academic-research-journal article.

The notion of *voluptuous validity* offers a final opportunity to state why the LDP, based on CDAI theory, is so successful at pinpointing which CEOs and consultants successfully support organizational transformation in the ten-company study: *each later action-logic is increasingly open and committed to integrating action and single-, double-, and triple-loop inquiry* (“listening into the dark” “engaged and self-reflexive at each moment of practice”). *This increasing frequency of listening into the dark is likely to increase the frequency of timely, transforming actions and organizational results.* Because the CDAI paradigm at its core understands and enacts power as primarily mutual, and only secondarily and usually less effectively as unilateral... And because the vast majority of organizational members in all contract-organizations today operate at action-logics that treat unilateral power as real-er than mutual power... Organization-members’ behavior will initially tend to be heavily influenced by whom they regard as having the most conventionally-tamed unilateral power (e.g., a CEO or a lead consultant to an organization-wide strategic-action). Such CEOs must be able, by example, not just rhetoric, and through the liberating disciplines of timely action-projects, to lead mutually and thereby teach others to lead mutually as well. Exercising vulnerable, mutually-transforming power and inquiry in spontaneously timely action amidst others may constitute the essence of voluptuous validity.

Validity-threats that Apply to Positivist Research more than to CDAI Research

Once one commits in practice to first- and second-person action inquiry, some of Cook and Campbell's (1979) specific threats to internal and external validity are much less likely ever to become an issue in research theoretically and practically informed by CDAI. For example, Cook and Campbell (1979) address the threat of *hypothesis-guessing by subjects*, which is best avoided by making hypotheses hard to guess or deliberately giving subjects false hypotheses. These “remedies” (utilizing uninformed researchers and lying to subjects) are neither attractive, nor regarded as ethical in paradigms after the action turn, like cooperative ecological inquiry and Developmental Action Inquiry. Paradigms after the action turn invite researchers to test the efficacy of their own actions and assumptions with peers (Kahane, 2010; Senge, 1990; Scharmer, 2007; Torbert, 2000b), and invite all involved in the research to become “observant participants” (Torbert, 1991) who seek mutuality and trust through their actions and inquiries as one condition for the inquiry element of each timely action, as well as for the full mutuality necessary for successful relational and organizational transformations.

Another threat to the Empirical Positivist version of validity that applies much more lightly to CDAI is the threat of *experimenter expectations*. This threat describes any situation in which the researcher taints the subjects with his or her experimental goals. To reduce the effects of this threat, Cook and Campbell suggest employing experimenters with no expectations or false expectations (Cook & Campbell, 1979: 67). Since the “experimenters” in paradigms after the action turn are sometimes also key actors in the experiment, providing them with false expectations seems likely to be considered stupid, as well as unethical, and less likely to lead to efficacy and validity than:

1. empowering all research/ participants to aim high for themselves and the community of inquiry as a whole in terms of new actionable learning;

2. creating exercises for all research/ participants to master performances synchronous with their own aims;
3. creating measures by which research/participants may estimate their own and the community's performance;
4. assuring the primary experimenter(s) operate(s) at a late action-logic (since action inquirers at late action-logics are the least likely to rely on expectations to begin with and the most likely to recover from false expectations the fastest by testing the validity and efficacy of their own and others' actions, theories, and assumptions in the course of the study); and
5. creating a context where the experimenter is motivated to help all research/participants equally (a condition the ten organization study meets because each organization was an independent, paying client and the division between experimental and control groups was made only analytically and only after the all the consulting assignments were complete).

A second way that social scientific research after the action turn combats the threat of *experimenter expectations* is by studying topics, such as adult development and organizational transformation in real time, as the 10-organization study does, where positive results are very desirable, but also very difficult to achieve. (Jane Loevinger, a self-confessed Expert and Empirical Positivist, once advised against using her original version of what now constitutes three-quarters of the items of the leadership-related sentence-completion measures in studies seeking to generate transformation... because, she said, she knew of no studies that showed anything other than “no change,” like most educational-intervention research. [And at that time, given the pre-action-turn-methods used both in research and in intervention practice, she was right (Torbert, 1981)].)

A third way that social scientific research after the action turn guards against the distorting effect of *experimenter expectations* is by using measures that are difficult to cheat on, no matter what experimenter or participants expectations may be. For example, there is specific research to show that even when research subjects are invited to “cheat up” on the Loevinger sentence completion measure (forerunner of the LDP), they almost never succeed (Redmore, 1976).

Fourth, experiments after the action turn concern real-time events of vital concern to the research participants (e.g., the future of their careers and their organizations), so they are much less likely to abdicate power to researcher/ consultant/ interventionists who are not acting credibly or effectively.

Fifth, the primary researcher/ activists themselves (if they have developed to the Strategist action-logic or later and are attuned to the action-turn-spirit of acknowledging incongruities as a precondition for transformation) want to learn the truth about how and when their theories work or do not work in practice, since they want to increase their effectiveness in real-time in the future more than they want to fake results for the purpose of academic success.

For example, in the Rooke and Torbert (1998) study the primary purpose of the third-person research project, undertaken after the first-and-second-person research-and-consulting processes had been completed, was *not* to prove the success of the approach in general, but rather *to learn more about why we clearly failed in certain cases. One way of generalizing what we learned is that, as consultants with the mission of helping small and*

mid-sized organizations transform constructively, when we encounter an organization whose CEO does not measure at Strategist or later, we ought to direct as much attention to testing the validity of that finding and to helping the CEO transform (or find a different role) as we direct toward helping the organization more broadly to transform.

Testing the Comparative Validity of Two Paradigms

Having now reflected on the 10-Organization study and on the construction of this article as two opportunities to assess the various types of validity against which research in the CDAI paradigm can be tested, we next address the issue of the relative validity of the paradigm itself compared to a currently-legitimate scientific paradigm such as empirical positivism. Lichtenstein (2000), in a kind of review of research paradigms in management, reframed Taylor's (1992) characterization of paradigm transitions, arguing that there are three criteria by which it is possible to judge the relative validity of two paradigms. The criteria Lichtenstein proposes are:

1. whether the new paradigm is more comprehensive than the former;
2. whether the new paradigm can self-reflectively explain why it is more effective, and
3. whether the new paradigm adequately eliminates an erroneous finding of the previous paradigm.

By analogy, Lichtenstein shows how quantum mechanics is more valid than Newtonian physics with its ability to explain more (e.g., subatomic behavior), explain why it can explain more (e.g., providing the dynamic equation through which mass and energy transform into one another), and by correcting errors in the Newtonian model (e.g., using warped space-time to correct Newton's inaccurate predictions of planetary orbits). We will use these same criteria to adjudicate the validity claims of the CDAI meta-paradigm.

Is CDAI more Comprehensive than EP?

About the first criterion, asking whether the new paradigm (here, CDAI) is more comprehensive than other paradigms (here, EP), Lichtenstein (2000, p. 1352) writes:

Models that are more inclusive of all aspects of science and of human nature would be more valid than those that focus only on scientific frameworks... For example, research models that take into account the subjective quality of human perception while at the same time using objective measures of perceived phenomena would be more inclusive than those that focus on either a subjective account or an objective one alone.

As we believe we have shown, action inquiry is distinctive in its call to integrate objectivity, intersubjectivity, and subjectivity -- through third-, second-, and first-person research/practice. According to this paradigm, the truth-quest is insufficiently engaged if we are solely concerned with retrospective views of patterns there-and-then; we can also attend to and question *our mutuality* and the *integrity* of *our* actions here-and-now, as well as the interplay among first-, second-, and third-person processes in the past, present, and future.

By contrast, EP privileges third-person objectivity with regard to the past, as well as single-loop, hypothesis-testing learning over all the other modalities of learning – the subjective and inter-subjective, the present and the future, the double-loop and the triple-loop, the in-action as well as the in-reflection.

Can CDAI Reflectively Explain its Wider Comprehensiveness?

The second criterion of the validity of new paradigms is whether the new paradigm polemically disregards the previous theory, or, rather, is self-reflective as to how and why it is more comprehensive. CDAI values EP third-person research/practice as an opportunity to be challenged by, and to challenge, others not directly involved in the research... as well as valuing the additional aspects of second- and first-person research/practice presented here. The proposition is that the paradigms after the action turn represent more valid social science in their ability, unshared and unsought by EP, to improve the efficacy and inquiry of the parties involved in the original research and action, while also seeking to inform (and even potentially catalyze transformation in) third-persons, *such as you, dear readers*.

Put differently, CDAI does not dichotomize objective knowledge from inter-subjective meaning-making and subjective action, as do paradigms before the action turn. Instead, CDAI theory explains how humans and science can develop from impulsive subjectivity, through critical objectivity, and then on into active, constructive, mutual, and inquiring intersubjectivity that integrates subjectivity and objectivity in an increasingly timely fashion...

Does CDAI Eliminate an Erroneous Finding of EP?

Lastly, a new paradigm can be considered valid if it corrects an error embedded in the previous paradigm. From our perspective, the fundamental error in purely third-person, uni-directionally causal social science theories and methods is that "objective truth," "inter-subjective meaning," and "subjective consciousness" become increasingly alienated from one another and the possible mutualities between mind and body, self and other, technology and nature (human, animal, vegetal, and mineral) become obscured. This alienation is reflected in (a) economic models that, bizarrely, treat the natural environment as a variable exogenous to the economic system, its goods free, our harm to it uncounted as a cost; (b) political models that offer no vision of vulnerable, mutually-transformational power; (c) medical models that focus almost exclusively on bio-chemical sources of disease and little on subjective and intersubjective sources; and (d) an even more general tri-furcation among the true, the good, and the beautiful -- objective science, intersubjective ethics, and subjective aesthetics.

When we examine all the validity assessments taken together, we see that Developmental Action Inquiry responds to three broad types of validity concerns, whereas Empirical Positivist research is concerned predominately with what we have classified as third-person validity criteria. Research/ practitioners engaged in CDAI test validity not only in third-person analytic terms primarily comprehensible to scientific communities, but also in the real-time action terms meaningful to, and usable by, second-person practitioner communities, as well as in terms of here-and-now, post-verbal, first-person awareness and action. Moreover, we have shown that CDAI avoids a fundamental source of error in EP, by including the researchers within the

research and not trying to fool other research participants about the hypotheses. Of course, we are just at the outset of finding helpful ways to characterize first- and second-person validity testing and how to integrate first-, second-, and third-person research and action. Our efforts by no means claim to be exhaustive and final, but are rather no more than introductory and suggestive.

In any event, you, dear readers, can no doubt by now see what the most demanding challenge will be, if you who read about this approach wish to engage with, use, and master the CDAI awareness, theory, practice, and empirical assessment tools to further test how to generate personal, organizational, and/or scientific transformation. The most demanding challenge will be, *not* how to master developmental theory and assessment methodologies (though these are as complex, or more so, than many other social science theories and empirical methodologies). Instead, by far the most demanding challenge will be, *under what conditions and to what degree can you become sufficiently present in real-time to act in inquiring, mutual, timely ways?*

To become a mature social scientist in the CDAI paradigm requires personal development across one's adulthood toward later action-logics, through participation in organizations that move toward becoming real-time communities of inquiry, beginning as an aspirant and potentially transforming later to a peer, gaining increasing ability to relate, with both discipline and spontaneity, to an increasingly wide range of situations and worldviews, til one retires into the background of non-doing.

Conclusion

Collaborative Developmental Action Inquiry and Cooperative Ecological Inquiry—the social science paradigms theorized as embracing the action turn at the outset of this essay—are different from earlier paradigms in that their primary focus is on presencing inquiry for timely action amidst real-time interactions with others. CDAI, in particular, integrates first-person, adult spiritual inquiry and consciousness development in the emerging present with second-person, transformational, mutuality-seeking political action inquiry for the future, and third-person, objectivity-seeking social scientific inquiry about the past.

This essay is primarily a third-person form of social science, applying validity criteria to past studies. But it also points to the significance of first-person research/ practice that generates adult development of consultants and CEOs to the Strategist action-logic or later, if second-person organizations are to transform toward communities of simultaneous action and inquiry. We have attempted to illustrate how, in CDAI, first-, second-, and third-person forms of action and inquiry require and reinforce one another.

If our readers wish to test the validity of this paradigm further for its possible value in your scientific, organizational, or personal lives, we believe you will need and want, not only to read further in the literature cited, but also to explore how to engage directly in first-person and second-person research/ practice.

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