

**Quantum Physics Implications of Storytelling for Socioeconomic Research Methods:
Experiences in Small Business Consulting Research from New Mexico State University**

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Abstract

The assumptions of quantum physics about nonlinearity, non-equilibrium, and a new approach to materiality as waves-particles shifts is making a difference to research methods used in Academy of Management. The work in theoretical quantum physics of Karen Barad (2007) suggests that materiality is *intra-activity* with discourse, and that materiality itself must be reconceptualized in the social science with entirely new assumptions. Here, we explore those new assumptions in relation to research methods and consulting methods used in small businesses that apply Henri Savall's 'socioeconomic' approach. My contribution is to look at four types of antenarratives (a genre of storytelling & discourse). In particular, differences between linearity assumptions of linear- and cyclic-antenarratives, and the nonlinearity, non-equilibrium, and materiality assumptions of spiral- and assemblage-antenarratives are explored.

Keywords: storytelling, antenarrative, quantum physics, socioeconomic approach

Introduction

For the past thirteen years I have been teaching small business consulting at New Mexico State University using the 'Socio Economic Approach to Management' (SEAM) developed by Henri Savall and his colleagues from Lyon III University and the ISEOR group (Savall, Zardet, & Bonnet, 2008).

My purpose here is to explore the research methodology implications of the paradigm shift from mechanistic (Newtonian) physics to quantum physics for socioeconomic methodology. My thesis is that research methods in not only socioeconomics but in a wide array of methodologies used in the Academy of Management are undergoing a shift to quantum physics assumptions about nonlinearity-causality, equilibrium, and materiality. I have been working with Heather Baca-Greif from Aalborg University in Denmark to look at nonlinearity, non-equilibrium, and quantum-materiality in the socioeconomic research methodology we use in New Mexico to diagnose and intervene in small businesses (Boje & Baca-Greif, 2011). Last summer, I began working with Henri Savall and Marc Bonnet on relating SEAM to four types of antenarratives. This resulted in chapters in a book published by Routledge (Boje, 2011b; Savall, Zardet, & Péron, 2011).

The Case for Story is 'Not' the Same as Narrative

In Aristotle's *Poetics*, Narrative requires story to be a *proper* "imitation of an action that is complete in itself, as a whole of some magnitude... Now a whole is that which has beginning, middle, and end" the definition of coherent narrative (Aristotle, 350 BCE: 1450b: 25, p. 233). Yet Aristotle also had a role for [living] story actions. Epic-story is "made up of a plurality of actions" including simultaneous episodes of diverse kinds, but is not as nuanced as history (Aristotle, 1462b, # 7: p. 265).

Mikhail Bakhtin (1973) makes a distinction between narrative and story that for me is also useful: "narrative genres are always enclosed in a solid and unshakable monological framework" (1973: 12). Story, by contrast, is more a plurality: "The plurality of independent and unmerged voices and consciousness and the genuine polyphony of full-valued voices... plurality of equal consciousness and their world" (Bakhtin, 1973: 4).

Derrida makes a distinction between narrative as a demand, an interrogation, and story as something different: Derrida (1979: 78, bracketed additions, mine) says "A demand for narrative [is], a violent putting-to-the-question an instrument of torture, working to wring the narrative out of one as if it were a terrible secret... [With] archaic police methods... psychiatric, and even psychoanalytic [methods]." Derrida (1979: 82): "Each "story (and each occurrence of the word "story" (of itself) each story is at once larger and smaller than itself, includes itself without including (or comprehending) itself, identifies with itself even as it remains utterly different from its homonym."

Finally, in Judith Butler's (2005) *Giving an Account of Oneself*, there is a distinction between narrative that is interrogation (as in Derrida above) or a demand for confession, and the kinds story that is more polyphonic, more about what Jo Tyler (2007) and I call 'living story' in wider webs of relationality (Boje, 2001, 2008a). Butler (1993) focused on the materiality of discourse, and the 2005 book includes a reading of Foucault's discourse and materiality. The story becomes the ethic by which one lives (Butler, 2005: 126). And storytelling itself is an action, in caring for self and others. If storytelling is a material-action, in the quantum physics sense of materiality, then it makes sense to begin looking at a more posthumanist approach to storytelling, one that is not only *homo narrens* but a *material narrens*. It is such an approach that one finds in work, for example by Jane Bennett (2010) on onto-story, the way materiality-assemblages tell a story, in a forensic, and genealogical/archaeological way. As we will explore, such a notion of *material storytelling* in a posthumanist perspective, make what Latour (2005) calls 'actors' (living beings) and 'actants' (living things) co-tellers in an actor-network, actant-network manner of storytelling.

Next we look at several of us in organization studies who wrestle with what is the relation of narrative and story.

Storytelling Organization Approaches

My approach to storytelling is somewhat different than that of Czarniawska (1997, 1998, & 2004), Weick (1995), and Gabriel (2000, 2008a, 2008b, 2011, forthcoming). In Table 1, I compare the trends in our theorization and methods, and provide definitions. The basic difference is how narrative is defined in relationship to story, and in my case, to antenarrative, as well. For all four of us there are crucial differences between narrative and story.

For Czarniawska and Weick, narrative-emplotment controls the fabula of story-content, in ways consonant with Aristotle (350 BCE) and Russian Formalism. For Gabriel, who has some definite Aristotelian notions, the relationship is reverse: story is something more than narrative-plot; it is performatively-expressive, and yet must be whole communicative performance. This is why Gabriel (2000) raises the anemic objection to my work on ‘terse’ fragments storytelling. My own work looks at storytelling holographically as a dance between retrospective-narrative-sensemaking, the immediate presentness of living-story-relationality, and the prospective-antenarrative-sense-shaping ‘storytelling organizations’ (Boje, 1991a, b, 1994, 1995, 2001, 2008a, 2008b, 2011a, b, c, d)

Living Story Relationality Webs – Living stories are never alone (Tyler, 2007; Boje, 2001, 2008a). They occur in webs of connecting and changing relationships, where one living story leads to telling another and always one more. Living stories are emergent in the Now, in the event-ness of once-occurrent Being-ness. The living story webs in the Nowness have connections to some antenarratives that are quite different: spiral and assemblage. Those webs of relationship are also called “meshworks” making connections and intersections that become spirals or more rhizomatic assemblages (Linstead & Pullen, 2006: 1291).

Antenarrative has four meanings (Boje, 2001, 2008a, b, 2011a, c):

1. ante→ **‘before’**, (ante) prior to narrative-retrospective coherence; the ‘living stories’ are emptied out of narrative arc, and ‘little wow moments’ are covered over.
2. ante→ **‘bet’** (ante) anticipated-prospective transformation will ensue iteratively link to ‘predictions’ of end-state (frequently used in strategic planning, leader’s visions, goals, etc.
3. ante→ **‘antecedent’**: Heideggerian ‘Being-of-possibility’, an *a priori* (not in Kantian sense; Platonic ideas precedent to materiality in dialectic of predicate-qua-social of actants (living things) & actors (living beings) but in posthumanist ontology
4. ante→ **‘anteriority’** primordial futurity, “ahead-of-itself” in Heideggerian sense of compassion and care ethic; Kitarō’s ‘teleological causality’ or Aristotle (Metaphysics book) ‘final cause’ that works from future back to present & past.

Ante as ‘bet’ or prediction of end-state takes form of linear- or cyclic-antenarrative:

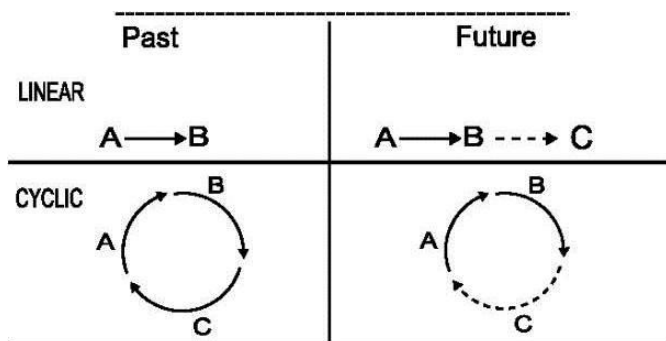


FIGURE 1: The Linear and Cyclic Antenarratives (Source, Boje, 2011a)

Ante as anteriority is more a connection of living story presentness to the futurity, and is more the spiral or the assemblage:

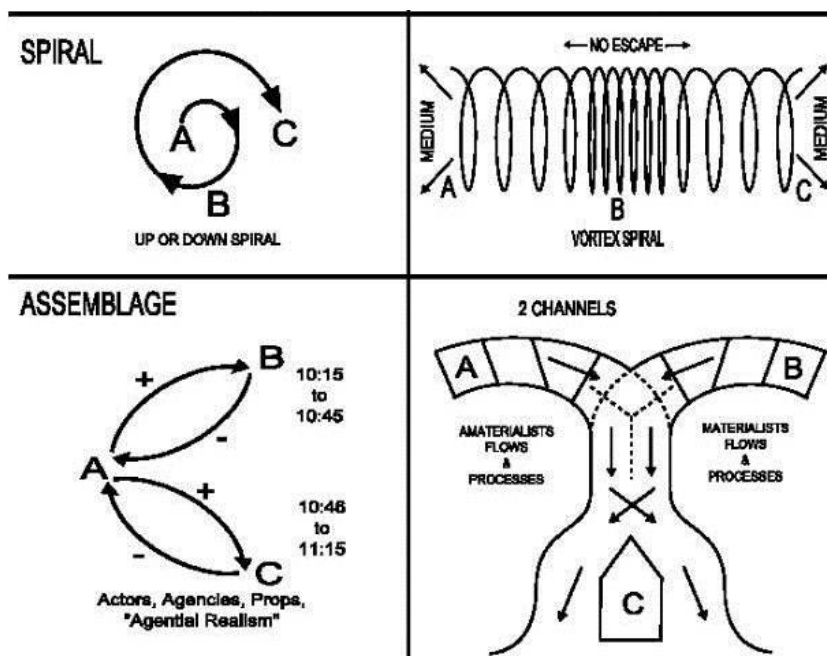


FIGURE 2: Spiral and Assemblage Antenarratives connecting Present and Future (Source, Boje, 2011a)

These connect present and future in a back and forth of future and now shaping possibilities (FSP & NSP). The assemblage of actors, agencies, and props is what Karen Barad (2007) the quantum physicist calls ‘agential realism.’

Table 1: Definitions of Storytelling Genres in Organization Studies

Definitions by Organization Theorists	Storytelling Genre Relationships
<p>Czarniawska (1997: 78), for example, says narrative, or “a <i>story</i> consists of a plot comprising causally related episodes that culminate in a solution to a problem.”</p> <p>Czarniawska (1999: 2) clarifies, “for them to become a narrative, they require a <i>plot</i>, that is, some way to bring them into a meaningful whole.”</p> <p>Czarniawska (2004: 17) “[A] narrative is understood as a spoken or written text giving an account of an event/action or series of events/actions, chronologically connected”; and focus is on ‘petrification.’</p>	<p>Early work on focused on how narrative plot and wholeness controls story content from Aristotelian-Burkean dramaturgic perspective</p> <p>Current work addresses fragmented (terse) narratives but sees the ‘petrified’ ‘unchanging’ narrative as the backbone of the ‘strong corporate culture’ where originary ‘core values’ do not change (or change rather slowly).</p>
<p>Weick (1995: 128) focuses on stories that “gather strands of experience into a plot” or a “good narrative” that provides a “plausible frame for sensemaking,” a way of mapping formal coherence on “what is otherwise a flowing soup.”</p>	<p>Early work focused on retrospective-sensemaking-narratives achieving causal chains and coherence.</p> <p>Later work wonders if there are prospective-sensemaking approaches working in relationship to retrospective-sensemaking.</p>
<p>Gabriel (2000: 22) “narratives ... simple but resonant plots and characters, involving narrative skill, entailing risk, and aiming to entertain, persuade, and win over.”</p> <p>Gabriel (2004) focuses on premodern narratives in relation to stories</p> <p>Gabriel (2008a, b, forthcoming) miasma-effects of storytelling as a toxic-contagion</p> <p>Gabriel (2011) a picture cannot be a narrative</p>	<p>Story is something more than narrative. Story is expressive and performative</p> <p>Later work looks at emotional contagion (miasma) storytelling in universities</p> <p>Current work looks at how narrative cannot portend meaning without the addressee to filling in the blanks.</p> <p>Miasma is a type of storytelling in organizations that involves interplay of narrative and story.</p>
<p>Boje (1991a, b) looks at the ‘storytelling organization’ as the “preferred sensemaking approach”</p> <p>Boje (1995) looks at “storytelling organizations’ as having simultaneous storytelling in different rooms of an organizations and a complexity networking of people chasing storylines from room-to-room, where sequence of networking, matters.</p> <p>Boje (2001) developed antenarratives as one of three intra-playing genres of storytelling</p> <p>Boje (2008a, b) looks four types of dialogisms in ‘storytelling organizations’ strategy ways: polyphonic, stylistic, chronotopic, & architectonic</p> <p>Boje (2011b, d, e) looks at the quantum physics aspects of ‘storytelling organizations’ including four kinds of antenarratives.</p>	<p>Early work focused on storytelling as retrospective sensemaking, where the stories were tersely told, never whole, and being told differently across contexts.</p> <p>Later work addressed the complexity networking of multiple storytellers doing sensemaking without an overarching grand narrative.</p> <p>Later work put antenarratives in holographic relationship to retrospective-narratives, living story webs of relationality, and four types of antenarratives.</p> <p>Current work is on quantum physics assumptions of nonlinearity, materiality, and non-equilibrium being in intra-activity <i>with</i> storytelling genres.</p> <p>In storytelling holography narrative and living story relationality intra-play differently with four antenarrative types: linear, cyclic, spiral, and (rhizomatic) assemblage.</p>

Mechanistic and Quantum Physics Antenarrative Assumptions

For the past century, management literature has been dominated by what Andrew Abbott (1981, 1988, 1990, & 2001) “general linear reality” (GLR) set of assumptions:

1. That the social world consists of fixed entities with variable attributes,
2. That cause cannot flow from “small” to “large” attributes/events,
3. That causal attributes have only one causal pattern at once,
4. That the sequence of events does not influence their outcome,
5. That the “careers” of entities are largely independent, and
6. That causal attributes are generally independent of each other.

Marxian, Weberian, ethnomethodological, hermeneutical, and symbolic interactionist researchers reject the assumption of fixed entities, and they “all approach social causality in terms of stories, rather than variable attributes” (Abbott, 1988: 171). In the fixed entity approach, variable/attributes can change, such as size, governance, formalization, standardization, centralization,

routinization, and technology. In Table, 2, I reimagine Abbott’s assumption of GLR in relation to linear and cyclic-antenarratives, and in the right column propose what I read as the quantum physics assumptions regarding spiral and rhizomatic-antenarratives.

TABLE 2: Mechanistic and Quantum Physics and Antenarrative Assumptions

Mechanistic Physics--Narrative	Quantum Physics--Antenarrative
1.0 Fixed entities with variable attributes antenarratives	1. Non-fixed entities with wave/particle vacillation antenarratives
2.0 Monotonic causal flows from big to small causal effects antenarratives	2. Quantum causal flows, e.g. butterfly effects from small to large effects antenarratives
2.1 Constant relevance in linear transformation antenarratives	2.1 Differential relevance from nonlinear iteration-to-iteration antenarratives
2.2 Unity of time horizon with events of equal duration in linear causal antenarratives	2.2 Complex temporal horizons with events of variable duration antenarratives
3.0 Univocal meaning in antenarratives where a given attribute has one and only one effect within a plotline	3.0 Dialogical meaning from complexity of differentiated antenarrative causal paths
4.0 Absence of sequence effects in linear/cyclical-antenarratives	4.0 Sequence effects matter in spiral and assemblage-antenarratives
4.1 The past is expected to recur in the future in linear and/or cyclic-antenarratives	4.1 The present upsurges become nonlinearity shapes of the future in spiral and/or assemblage-antenarratives
5.0 Casewise independence up to an error term in narrative and linear and/or cyclic-antenarrative accounts	5.0 Casewise spatial contagion without case-independence in spiral and/or assemblage antenarratives
6.0 Independence of context assumed in narrative accounts that are recursively intra-playing with linear and/or cyclic antenarratives	6.0 Causal meaning depends on context shifts in <i>spacetime mattering</i> of spiral or assemblage-antenarratives

Quantum Shifts in the Socioeconomic Approach to Research Intervention

By way of introduction, for those of you not thoroughly familiar with the socioeconomic approach of Henri Savall and his associates, a brief overview is required, before I start to tinker with it, and point out or actually install the quantum physics assumptions in Table 1.

Virtue Ethics in Socioeconomic Research Methodology First of all, it is rooted in Aristotelian assumptions about virtue ethics. I don’t know if it started this way, but has become so. In particular, Aristotle’s book on Virtues (350b BCE) focuses on the deficiency or excess of a habitude is a dysfunction, whereas the intermediate path is habits that are just right for the situation and virtuous ethically. Habitude in Latour’s (2005) action network terms is the habitual actions. In Savall, Zardet, and Bonnet (2008) the diagnosis research means spending long periods of three months, a year or more, carefully charting the metascript (the discourse, including storytelling).

A *metascript* is all the partially-implemented scripts by all the stakeholders, the actors, editors, script writers. Metascripts are decidedly messy, shifting, transforming discourses that necessitate many hours of ethnographic, participant observation. The metascript is not simply verbal or dramaturgical. And there is something distinguishing the socioeconomic approach from a range of sociotechnical approaches, and that is that, shockingly, it is also about numbers, about accounting, finance, and economic numbers, about charting costs and revenues, some of which are quite hidden from the balance sheet or annual reports. And during the diagnostic research, the challenge is to sort out the hidden costs and potential revenues (also hidden) in relation to the metascripts. Then it is Aristotelian, to change the habits of excess or deficiency, that Savall and colleagues, call the ‘dysfunctions’ by adopting more virtuous, less vice-full, habits of thought, emotion, and behavior.

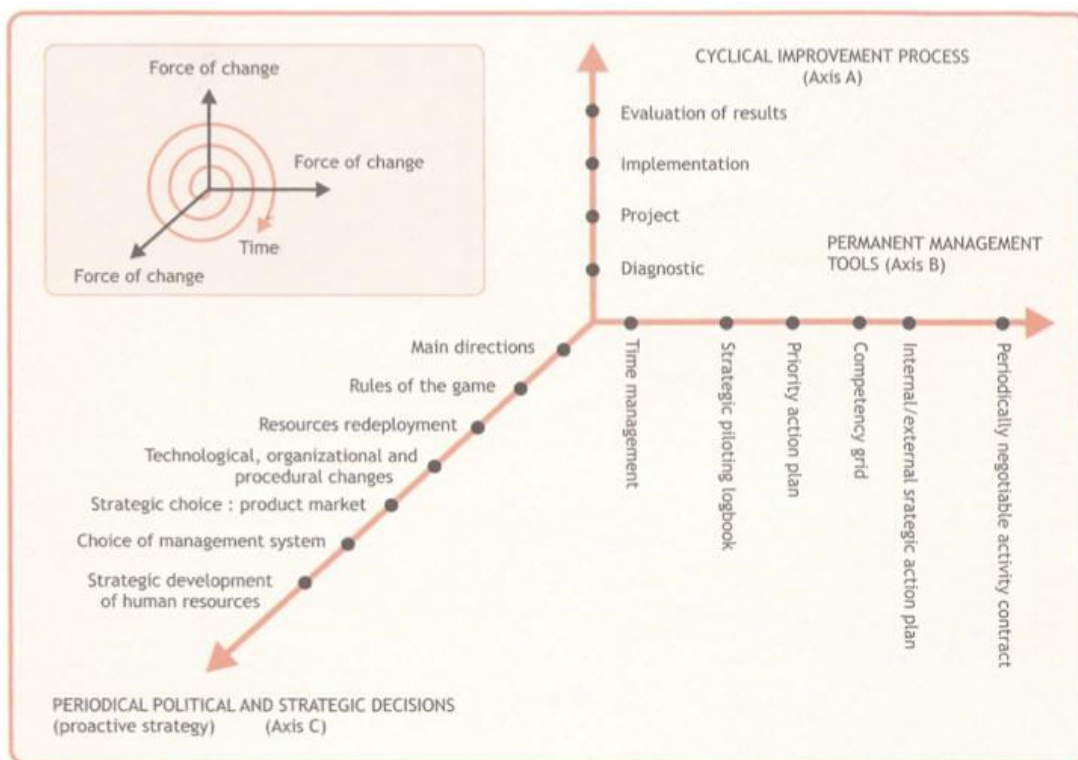


FIGURE 3 – SEAM 3 Axes of Socio-Economic Intervention Research (Source, Savall, Zardet, & Bonnet, 2008: 26).

Time Spiral in Socioeconomic Methodology – Note the spiral in the figure above, in the upper left. This at least one spiral-antenarrative I find in Savall, Zardet, and Bonnet’s (2008) socioeconomic approach to research intervention. In their main model, of 3 Axes of intervention, is what they call a ‘time spiral’: A, a cyclic process, B, a line of tools, and C, elaborations of the adaptive-system structures and behaviors. The three forces of change (i.e. the axes), some of which are linear-antenarratives (Axis B time management, strategic planning tools), and others cyclic-antenarratives (Axis B, stage-by-stage intervention), and the *time spiral* itself, looping through them, constitute the socio-economic approach to ‘intervention research’ (Savall, Zardet, & Bonnet, 2008).

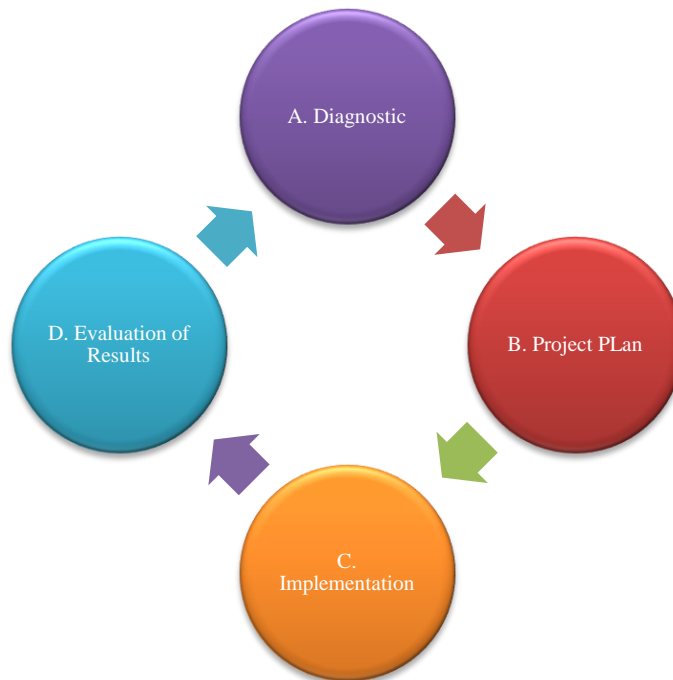


FIGURE 4 – Axis A– Cyclic Improvement Process (diagram by Boje)

Axis A – CYCLIC IMPROVEMENT PROCESS is what I am calling a "cyclic- antenarrative “of recurring stages. Savall et al (2008) call it a *Cyclic Improvement Process* that has four sequenced-stages (or phases): Diagnostic, Project, Implementation, and Results. The thing I instruct my students in New Mexico to remember about a cyclic antenarrative is that oftentimes, especially, in small businesses, the cycle does not recur exactly (stage-by-stage) and can become an upward or downward, even inward or outward spiral. The best diagnostic is *listening attentively* to retrospective-narrative-past, living stories immediate present durations, challenging entrenched narratives, opening path for new prospective-antenarrative possible futures (as-yet-not-achieved, & what-ought-to-be). Research interveners are asked to make spaces for them to get told with their clients, and that is an intervention, and to record them in their storytelling notebooks, as verbatim as possible. I want to give some insight into the one phase of the diagnostic process, called *Mirror Effect*.

Mirror Effect –the research interveners collect the metascript (verbatim dialogue, observed dramaturgy, numbers-in-use) and you tell the stories in a *Mirror Effect* meeting with your client. *Mirror Effect* (Savall, Zardet, & Bonnet, 2008: 66, 149) is defined as the direct quotes and the storytelling recorded from stakeholders. To this consultants add their own *Expert Opinions* (p. 66), & hidden revenue/hidden cost (see p. 55 Figure 5.2, p. 58-9, Figure 5.23 & 5.24 through p. 62 Figure 5.25.c; and in Chapter 6, p. 86 Figure 6.7, Appendix 3 & 5 Examples of Creation of Potential and Hidden Cost Calculation forms as templates

Research interveners listen because costs and lost revenues that are happening by continuing to do just as they are doing are hidden from report-texts, and all the lowering the costs and untapped revenue potential that comes from doing a series of iterative projects with the client.

Axis B - PERMANENT MANAGEMENT TOOLS - This is what research interveners train the client to do. It seems linear-antenarrative in its presentation, with all the 6 tools in a line, but this is itself a *Force of Change*, and the *time spiral* whirls through this axis, and the other two, one-by-one, beginning with #1 Time Management:

1. **TM (Time Management)** this is a diary of time usage. (pp. 121-125), this is where the client learns to delegate) and eliminate tasks so a space can open up for strategic actions.
2. **SPILB (Strategic Piloting Indicators Log Book)** – Research interveners’ storytelling notebook has entries about how to track things and serves as your SPILB. They also develop types of indicators (include qualitative & quantitative) for IESAP, PAP, etc. (Savall et al (2008: 126-9) book. The piloting of a small business depends on reading indicators to

know if the spiral is upwards or downwards, if the business is making or losing money, if customer returns and rework is decreasing or increasing, and so forth.

3. **PAP Priority Action Plan** -This is a simple chart translating the IESAP goals to specific sub-objectives, with priority actions, and who is responsible to get it done in the small business, and when it gets done during the 16 weeks of this course I teach (Savall et al, 2008: 114-117). Doing (by workers) and Thinking (by owners) can become separated. PAP is a linear antenarrative (a sequence of future-shaping events). As Marx (1867) puts it “division of labor ... is an effect of past, and a cause of future progress” (ibid, p. 363). The past narrative (retrospection, backward-looking) is effect and a cause of future-shaping linear action plan. Savall et al (2008) recommend involving workers in the PAP process, which in turn sharpens their Planning and Thinking in relation to their Doing.
4. **CG Competencies Grid** (aka Scale of Skills) - What are their strong, weak, and critical competencies before you consult (intervene), and ones needed to develop to get the level of quality, performance, capacity, market desired? (Savall et al, 2008: 56-9, 96-9, 118-120). An excessive specialization (division of labor) is a working condition where there is no flexibility: people cannot adapt to cover each other’s functions, there is no sense of how one’s job fits into the division of labor, skill sets become too narrow to exploit new opportunities in the environment, etc. Decomposition of competencies by specialization to form repetitive low-skill labor use, at lowest possible labor cost is only value-added in making simple products or services.
5. **IESAP Internal/External Strategic Action Plan** – IESAP covers 5 years, for internal organization and external environment change, which makes it a linear-antenarrative, of how to shape the future (Savall et al, 2008: 112-113).
6. **PNAC (Periodically Negotiable Activity Contract)** - PNACs, is the intervener-researcher contract for three objectives your project will complete with their client. PNAC is renegotiated several times during the term to keep your objectives in sync with client and instructor expectations. (Savall et al, 2008: 130-134).

Axis C PERIODICAL STRATEGIC AND POLITICAL DECISIONS (aka PROACTIVE STRATEGY) - It also points along the Time Spiral, and a Force of Change, beginning with Main Directions, and upward or downward spiral, more of the same linear strategy, repeating same cycles, reassemblage), Rules of the Game (who makes them and what is being done to change them?), Resources Redeployment (strategies need resources, where are they?), Technological and Procedural Changes (from more tools, machines, to job and department and process descriptions and procedure manuals for training), Strategic Choice: Product Market (or service); there are choices at each point in the moving spiral, Choice of Management System (more or less bureaucracy, more or less participation), and Strategic Development of Human Resources (training, recruiting talent, sharing the wealth, inviting head and hands to work participatively). Axis C is all the proactive strategies to intervene in the Structures and Behaviors that have atrophied, as presented, next, in the socioeconomic Four-Leaf Clover.

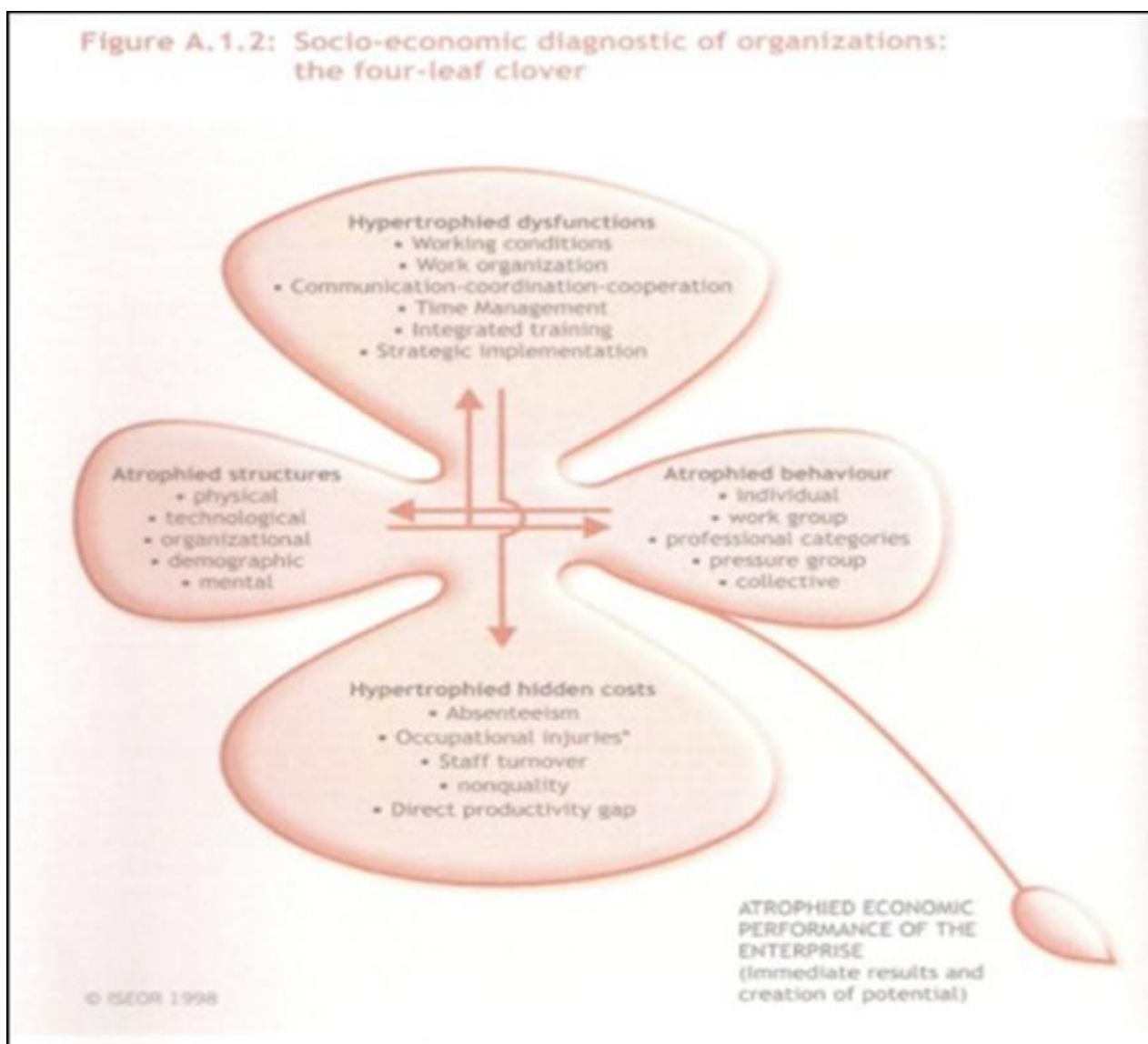


FIGURE 5 - The 4-Leaf Clover (Diagnostic of Small Business Dysfunctions) Source (Savall, Zardet, & Bonnet, 2008: 124)

A four-leaf clover is a type of rhizome, and according to the *Journal of Botanic*: “The Four Leaf Clover has long rhizomes... The Four Leaf Clover grows in still standing water, rich in nutritive substances, on all continents, except South America” ([source](#)).

This is how it translates in terms of trope:

- Stem – rooted in the marketplace, in the geography of place, in the nourishment of the environment where resources (materials, customers, employees, and ecology) reside.
- Roots – stem has its roots, and if a small business is not well-rooted it will not flourish. The roots draw in the nutrients, the life-sustaining vibrant material, the actants, actors, agencies. Roots in an assemblage antenarrative can sprout tubers, and those can be new business adventures. Some roots drain a small business of its resources and capabilities. They can be excessive. Other times roots are deficient and need to be grown with careful attention. You don’t just open your doors and become a success. The small business needs its roots.
- Runners/Vines – runners and vines also sprout tubers. Networking every which way, intertwining, and moving around obstacles, growing. Never the same. Lines of flight, but not linear (not straight lines), and making turns. And there can be too many or too few. These are visible above ground, and you can observe them, listen for them. This is where untapped potential is being found in the coursing of the runners/vines (and some of the roots), and you as a consultant can identify places, times, events, processes which will result in more revenues.
- The Stem is rooted in Multiplicities - There are connections among the processes that are diverse and heterogeneous.

In sum, I have shown ways in which the socioeconomic research and intervener methodology is already riddled with antenarratives, and some of these are linear, and some are nonlinear. In the next section, I want make amendments that I hope will move socioeconomics into all six quantum assumptions (as listed in Table 1).

Proposed Quantum Physics Amendments to Socioeconomic Methodology

First, I propose a change to the four-leaf clover model, which incorporates spiral antenarratives from the rhizomatic-antenarrative root assemblages.



FIGURE 6 – Proposed Changes to 4-Leaf Clover with Spiral-Antenarrative – Used by permission of LaToya Garcia, May 4 2011.

Out of the rhizomatic-assemblage-antenarrative mulch, six antenarrative-root-stem-spirals emerge: noncreation of potential, nonproduction, overtime, overconsumption, and excess salary.

The linear and cyclic antenarratives (3 Axes Chart) connects the past to the future in a back and forth of future shaping potentialities (FSP) and echo waves past or future shaping confirmations (PSC, NSC). Here is a summary of how antenarrative (storytelling) is being applied to socioeconomic research intervention.

1. **Linear-Antenarrative:** moves from past over to future-shaping linear, branching, from beginning to end, without much sense of Now-Being of the middles. Are strengths (internal to the business) and opportunities (external in market) being exploited? Are weaknesses (internal) and threats (external) being minimized?
2. **Cyclic-Antenarrative:** Small businesses have many recurring cycles of labor processes, production process phases, seasonal cycles of demand and harvest, etc. It also moves from past to future-shaping without much sensemaking of the present Nowness. Are the same cycles of (planning, doing, checking, and acting) from the past being rolled over into the proactive strategy for shaping the future?
3. **Spiral-Antenarrative:** this moves from the Now-Being once-occurrent event-ness (Bakhtin, 1993; Deleuze, 1993; Benjamin, 1999) to the future shaping. Have the small business processes left the cyclic (& linear) path of ‘repetition compulsion’? Are they on an upward or a downward turn in their spiral path? Most likely both are happening simultaneously. What is around the bend? What is their virtue spiral (i.e. what virtues/vices) are they encountered on the spiral? Spirals have direction, velocity, centering (centripetal) and decentering forces (centrifugal) forces pulling inward, pushing outward. What are they in this small business moving from Now to Now, becoming to becoming?
4. **Assemblage-(rhizome)-Antenarrative:** This also moves from present to future-shaping. Assemblages are on the move, changing, reassembling, and changing in webwork-direction as resources dwindle or blockages are encountered. Assemblages are non-linear (lines of flight), runners and roots moving every which way, all at once and reassembling as the assemblage: territorializes, deterritorializes and reterritorializes (see Boje, 2011a; Deleuze & Guattari, 1987; Latour, 1999, 2005; Bennett, 2010). An assemblage (Latour, 2005) is five sorts of materialities: 1) actants (material), 2) heterogeneous agencies (conduits), 3) different optics (perspectives), 4) different times (stuff made at different times), and 5) different places (stuff coming from lots of places). What is the flow of materials (raw and processed) through the small business from person-to-person, from person-to-machine-to-person, from machine-to-machine, etc.? How are the assemblages of materials actants? What are the subterranean roots? What are the above-ground (visible) vines or runners? Where are the tubers forming from runners/vines/roots taking root? How heterogeneous is the assemblage? What happens when a barrier is encountered by a moving assemblage? (Over, under, around, or through).

An additional amendment is to the way of strategic planning (PAP, and IESAP) in the socioeconomic approach. Here I rely on an insight from Bakhtin that I think help the relation of internal and external environment.

Internal and external (social) dialogization – an “internal dialogization” penetrates the small and the corporate business, reformulating storytelling standpoint differently (Bakhtin, 1981: 285). The “social heteroglossia” forces are “reverberations” that can penetrate even the most fossilized centripetal (deep structure) narratives (p. 285). The “environment of social heteroglossia” (p. 292) of the small business, has its own idyllic values and ethics. It is just senseless to study small business outside the real life struggle of internal dialogization of small business stakeholders and the encompassing eternal (social) dialogization. That internal/external dialogization includes the idylls of small business and corporate America, and the associated heteroglossic forces of the small business encompassed by an environment of social heteroglossia.

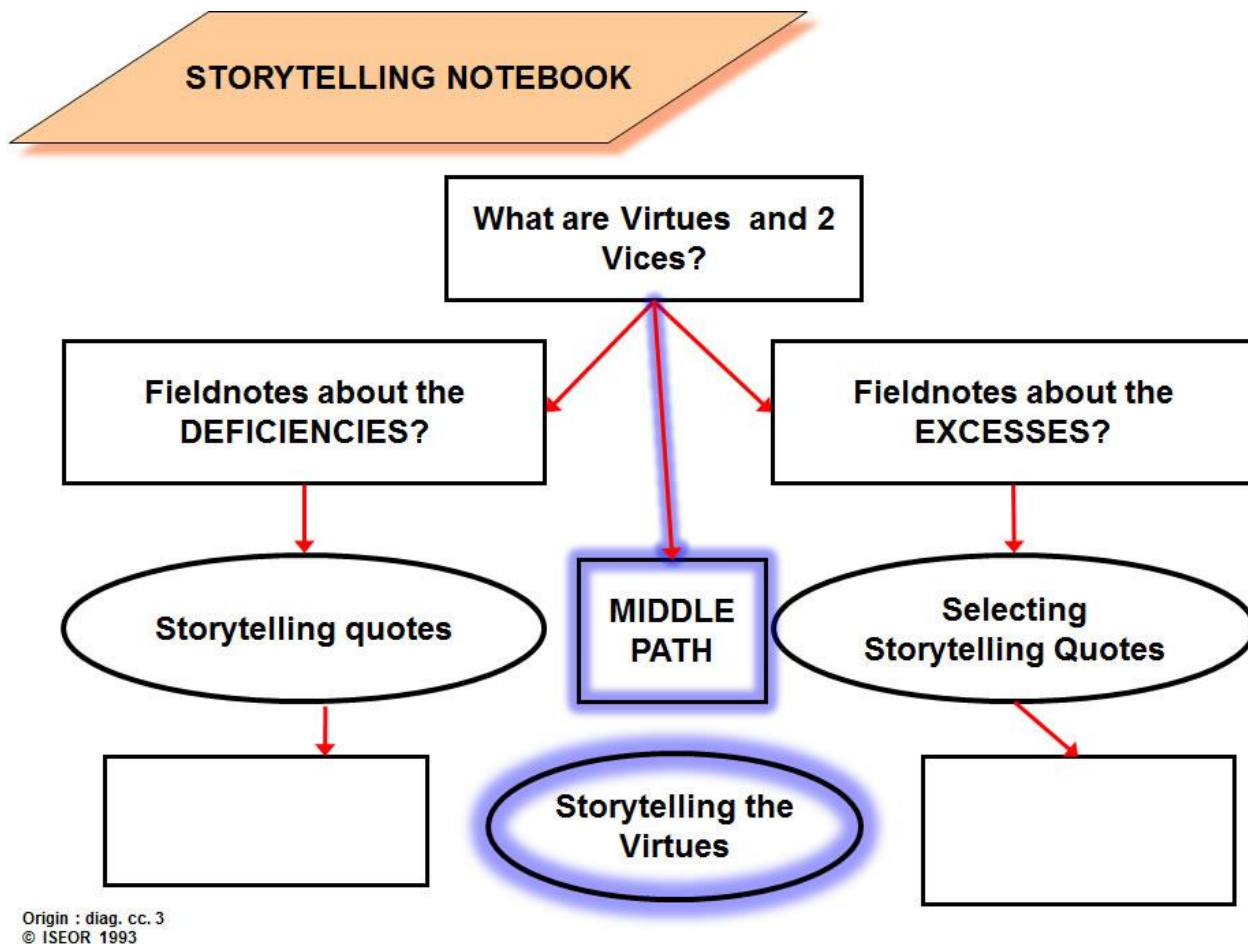


FIGURE 7 – Proposed Change to Dysfunction Approach - An adaption of Bonnet-ISEOR 1993 slide by D. Boje Feb 3rd 2011

Research interveners can behold the moment of the possibility of a small business the quality and the virtual spirals intrawine. Your interrogation of the small business people, and its materialization of quality continues. Spiral, “it is this and not otherwise” (Sartre, 1956: 5). A thread of non-being, a limitation, invades your next question. Actually it’s a triple non-being of the small business.

Fitness Landscapes and Morphic Fields

Stuart Kaufman (1995), a biophysicist is quite the storyteller (p. 27): “In coevolving systems, each partner clambers up the fitness landscape toward fitness speaks, even as the landscape is constantly deformed by the adaptive moves of the coevolutionary partners.” “During coevolutionary avalanches, species fall to lower fitness and hence are more likely to become extinct” (Kaufman, 1993: 268). Landscapes are more or less rugged, with lower and higher peaks of varying steepness (1993: 106).

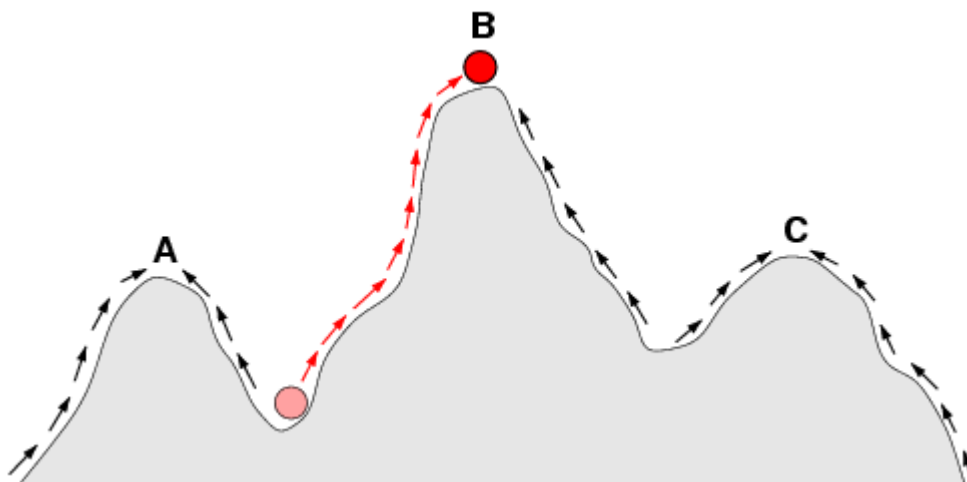


FIGURE 8 – Fitness landscape peaks (source of illustration C.O. Wilkes, 2001)

In this illustration, a population of small businesses, represented by the red ball moves from lowest fitness location, by adaptive walks, in two directions to find the fittest location at B.

Steve Elias, Stephanie Maynard-Patrick and I putting efficacy together with storytelling theory and coming up with efficacy spiral propositions. These are about efficacy spiraling peaks that swirl up in upsurge, until there is a phase transition and they topple, slide into downward, downsurge. Efficacy beliefs can be about making jumps in the fitness landscape from one peak of swirl to another one. But, iteratively, as many jump, there are fewer advantages, and more local jumps make have more

advantage. Peaks are of various heights (y axis) and are strung out along an evolutionary space of phase transitions (x axis). The valleys are where the narratives make small adaptations, and in the peaks are the spirals of living stories. The moves of antenarratives are hard to predict. In the “power law” (Kaufman, 1995: 29) “the same-size grain of sand can unleash small or large avalanches.” The peaks topple burying the narratives. The living stories of relationality keep reassembling, forming upsurge spirals into peaks, until they avalanche at some threshold effect. Quick sand is everywhere, at the edge of chaos.

Kaufman (1995: 33) reads Bergson’s theory of ‘*élan vital*’ as a vitalism idea, “an insubstantial essence that permeated and animated the inorganic molecules of cells and brought them to life.” Kaufman believes that *élan vital* works as well in economic, social, and cultural systems.

How does fitness landscape relate to storytelling theory? Narrative regimes are forever, emptying out living story variants to form linear plots. However these linear narrative regimes while enduring, are inherently fragile, and cracks are made, as they too go into phase transitions to chaos in these fitness landscapes.

Quantum theory, according to Kaufman (1995: 23) precludes detailed [antenarrative] predictions because the quantum dice are being rolled. In the butterfly effect, sometimes small change in initial conditions lead to “profound changes of behavior in a chaotic system.” Walking along fitness landscapes – Kaufman’s (1995) storytelling of fitness landscape, is about doing what he calls ‘adaptive walking’ and sometimes taking jumps halfway across a landscape. And, what is the nature of Kaufman’s (1995) *adaptive walking*, as compared to Guy Debord’s (1958) *dérive walking*, and Walter Benjamin’s (1999) *flâneur walking*. The first is aesthetics, the second is consumption, and the third is technological tinkering. *Dérive* is not the same as a stroll, as it literally means to ‘drift’: “Progress means breaking through fields where chance holds sway by creating new conditions more favorable to our purposes.” In Kaufman’s adaptive walking, there are also encounters with chance, with Fortuna. In Benjamin’s *Flâneur walking*, one is looking backward at the devastation of consumption that is piling up. Doing the 3 walks simultaneously, such as, would define a new architectonic null (Boje, 2011b, c).

It is interesting to contrast Kaufman with another biophysicist, Rupert Sheldrake (1981, 1983, 1988, & 2002). He also reads Bergson’s (1911/1991, 1911/2005) *durée* and *élan vital*, and developed a theory of ‘formative causation.’ For him these are not fitness landscapes, but morphic fields. And Sheldrake also read Bergson, focusing on the *durée*, the durations of immediate present experience, which are an accumulation of past-presents, swelling into the present. In the succession of morphic fields (past-presents), there is what Sheldrake calls, ‘formative causation.’ While Kaufman focuses on self-organizing transformative actions of fitness landscape, Sheldrake is looking at formative causation across one past morphic field, to the next one.

In storytelling terms, some narrative orders are robust (petrifications). Living story relationality webs are more diverse, heterogeneous, subject to contagion, more opportunistic, and exhibit nonequilibrium).

Finally, three antenarrative propositions emerge.

Three Antenarrative-Spiral Propositions

First proposition is simple: the spiral conditions of small business stakeholders (owner, workers, vendors, customers, regulators *and* the materialities of resources, flows of stuff) in-the-world unites with that other region of being the volition-being-for-itself (plans, strategies, schemes), and both are ways of storytelling being.

Second proposition is also simple: The antenarratives are connecting two regions of being in small business: being-in-itself-materiality and being-for-itself-emotion-volitional tone. And there are two related propositions: Linear and cyclic antenarratives connect past to future. Spiral and assemblage antenarratives connect present to future.

Storytelling Standpoint Methodology is an interrogation. What antenarratives are in existence in the small business in-the-world (being-in-itself) and what antenarratives are emotional-volitional (being-for-itself) premeditated conscious choice points.

Third proposition is more daring. In posthumanism Storytelling Standpoint there are nonhuman actors and actants that have their own regions of being, ways of being in relation to nothingness.

Conclusions

In this presentation, I have looked at the ‘general linearity reality’ of research and intervener research methodologies. I took up the cases of small businesses in New Mexico, which are obviously quite different from small business everywhere else. I explored what it would mean to change the assumptions of linearity and cyclicity of antenarratives that I found in Savall, Zardet, and Bonnet (2008), and I put accents on the spiral-and assemblage-antenarratives that I found in their work.

One radical idea: Bakhtinian heteroglossia is organized in small business in materiality-storytelling: oral tonality, in textual-material expression, in stylistics of architecture, in the corporeality of the body doing dramaturgical acts and deeds of storytelling, and in the subatomic quantum physics of the ‘observer effect.’

In storytelling standpoint methodology the once-occurrent event of Being, the Now moment of emotion-volition manner, the occasional singularity of storytelling with the materiality of the performed act/deed is being traced. Bakhtin (1993: 14,

additions mine) says that “aesthetic contemplation [as well as theoretic-scientific] is unable to grasp once-occurrent Being-as-event in its singularity.” A living story web of happening relationships becoming antenarrative spirals, to me, comes closest to this singularity because “life-in-process-of-becoming” (p. 13) is the focus. It is not an *a priori* aesthetic or theoretic narrative, nor is it consequential calculation (instrumentalism). Rather this is an answerability in the once-occurrent event of Being, and “life-in-process-of-becoming” (p. 13).

Perhaps my most radical idea is to research the teleological causality in a ‘quantum physics of storytelling.’ This is a move that Bergson and Weickian retrospective sensemaking is not about to make. And perhaps it should not be made as an ontological move. Nevertheless, people in small business do think in terms of teleological-causality.

My quantum leap: storytelling echo waves? Echo storytelling waves bounce back off of something in the future, giving one a reading of what may be encountered along a current wave path. Echo waves are a part of what I will call, ‘storytelling standpoint methodology.’ Small business has at least two storytelling standpoints, the idyllic of small business life, and the idyllic of corporate America life. Storytelling standpoint methodology is a way to analyze the forces of internal and social heteroglossia, in which echo storytelling waves participate. For example, in 7th Generation nature-sustainability, there is an echo wave, a storytelling of the future of our children into the 7th generation, if we continue to over-use and over-consume Mother Earth’s natural resources. We do sustainability accounting to forecast the depletion of oil reserves. By most accounts peak oil (the most abundant oil) has passed, and we face higher costs. The rate of usage of a natural resource (oil, old growth forests, top soil, etc.) foretells its availability in our future.

These predictions are what I have introduced here as echo storytelling waves. Thus far we have looked at PSC (Past-Seeking-Confirmation) and NSC (Now-Seeking-Confirmation) antenarrative waves. These echo storytelling waves have frequency, intensity and force of their momentum.

The intra-play of storytelling and (quantum) materiality (Bard, 2007) co-creates minor and more turbulent “shifts and oscillations of the social atmosphere; it does so, moreover, while registering as a whole, in all of its aspects” (Bakhtin, 1981: 300). The forces of refracted internal and social heteroglossia becomes subject to reworking the balance of idyllic storytelling standpoints, such as the small business and corporate America storytelling standpoints. The storytelling consultant observes (and interferes) with the internal and social heteroglossic forces that reverberate and refract what Bakhtin (1993), calls emotional-volitional tones.

Finally, I have been making the case that storytelling is holographic, an intra-play with materiality between narrative, living story relationality, and various sorts of antenarrative pathways, all shaping the future of organizations.

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