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# Grace, magic and miracles

## A “chaotic logic” of organizational transformation

Grace, magic  
and miracles

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Is there a logic of organizational transformation? According to academics, there are several fairly defined logics or theories for creating second-order change in groups and organizations, such as interpersonal logics (Argyris, 1990); developmental logics (Torbert, 1987); force field logics (Lewin, 1941), and several other approaches to planned change (e.g. Bartunek and Moch, 1987; Beckhard, 1969). On the other hand, organizational development practitioners have long talked about the “magic” of organizational change, focusing more on the intuitive, unexpected, and serendipitous moments in the actual practice of organizational transformation (Mirvis, 1988).

Unfortunately, distinctions between theoretical models and intuitive practices for generating change have resulted in a persistent rift between theorists and change agents for many years. One empirical study confirmed the all-too-obvious fact that although they have much to teach each other, the academics and the practitioner camps do not speak to each other, let alone use each other's knowledge at all (Barley *et al.* 1988).

As a new student to organizational transformation, my theoretical intuition was that this distinction was more institutional than real, and that in reality transformation was either more complex or simpler than either side was admitting. Thus, I decided to ask this question to a select group of practitioner/theorists – organizational change experts who had developed comprehensive theories for understanding and effecting organizational transformation that guided their own practice. I started with three individuals I was familiar with – Peter Senge (Senge, 1990; Senge *et al.*, 1994), William Torbert (Torbert, 1991; 1993), and Ellen Wingard (Stein, 1992; Wingard, 1993). I asked them about both their theoretical and their practical experience of transformation. Their in-depth descriptions about their work revealed a marvellous and unexpected pattern. In all three cases there was an interdependence between theory and practice: *both* logic and intuition, theory and practice, were necessary to effect lasting second-order change in groups and organizations.

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I would like to thank Ellen Wingard, Peter Senge and especially Bill Torbert for their insight, support and collaboration on this project. I take full responsibility for any unintentional misrepresentations of the theory and practice of these individuals.

This paper is dedicated to the loving memory of Evelyn Miller.

How can this interdependence of rational, theoretical logic and intuitive, contextual action be understood? The literature on chaos and self-organization may be a good start (Gleick, 1987; Prigogine and Stengers, 1984; Wheatley, 1992)[1]. These models have shown that dynamic systems are not “rational” or predictable *per se*, but rely on serendipitous events that can be amplified in unexpected ways, generating the emergence of new order which stems from a combination of rule-following and rule-breaking (Goerner, 1994; Stacy, 1995).

### **Research design**

The design for this research paper was straightforward, being part of a larger exploratory project on the emergence of new organizational structures at critical points of transition. I contacted Peter Senge, Bill Torbert and Ellen Wingard, and set up an interview with them to talk about the relationship between the “theory” they had each developed and their intervention experiences. In preparation for our meeting I re-acquainted myself with their writing and theoretical approach. Each interview lasted one to two hours, during which I had each individual describe their theory of organizational transformation and how they use their theory in specific change efforts. Then I asked each of them to describe what *actually happens* in the moment of transformation, emphasizing their use of several different case study examples. Following the interview, a complete transcript of our conversation was given to each individual for comments and feedback, and two drafts of this paper were also sent to them with a request for comments. The results are therefore a combination of my own sense making and their reflection on their case studies and my analysis.

I performed a content analysis of the case studies, looking especially for what they pointed to as the “cause” of transformative events. Specifically, I wanted to know how these practitioner/theorists explained the actual source of second-order change, and to what extent their “theory” was involved in effecting the result. As an attempt to be more integrative in my results, I moved back and forth between the interview data, the individuals’ written articles and books, and the emerging picture of what happened in each case. What follows is the result of my analysis.

### **Grace, magic and miracles: three case studies of transformation**

#### *Grace – the alchemy of Ellen Wingard*

Ellen Wingard’s primary theoretical tools come from the alchemical model of transformation which provides a powerful framework for guiding the design and implementation of major second-order change (Jung, 1946, 1955; Soros, 1987; Stein and Hollwitz, 1992). Wingard also utilizes Jung’s concepts of “soul” and “shadow” to help her understand certain organizational dynamics during a major change effort. The “soul” of a business has been described as the essence that creates meaning for its leaders and members (Chappel, 1993; Whyte, 1994). In Wingard’s words:

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It's different than spirit. It involves the web of relationships, the craft of work, the atmosphere and nuances of the daily work culture. It's unspoken but palpable experience that provides a richness in its presence ... and a starkness or vacuum in its absence.

The alchemical process, as defined by the medieval philosophers, required a breakdown of elements in order to transmute "lead into gold," i.e. the soul's fulfilment. Based on this theory, Wingard sees that the breakdowns in organizational life carry within them the "untransformed essence of the gold to come", where the greatest learning and transformation can occur (Stein, 1992).

Another term for the lead or breakdowns is "shadow". Shadow involves the unacknowledged or hidden issues that show up as a loss of meaning, dispirited morale, sabotage, cynicism and gaps between what is espoused in the organization's mission statement and what is actually enacted. By facing the organizational shadow, the creative and vital resources at work can be unleashed for a greater purpose (Whyte, 1994).

The alchemists used specific terminology to describe how the transmutation of base elements into gold occur in the cauldron or container (Stein, 1992). On seeing the model in the discussion section of this paper, Wingard told me that just as organizational transformation cannot be limited to a linear process, the mystery of alchemy cannot be reduced to a three-stage model. At the same time, she acknowledged the connections between the alchemical metaphor and organizational transformation. For example, she often begins with the "charring" or nigredo phase, representing the "dark night of the soul," where burnout, crisis and "loss of ethos" prevail. "Albedo" or bleaching describes the stripping to an essential nature, the dissolution of inflated images of the organization leading to a sober "soul searching" and inquiry. Finally, if the breakthrough is successful, "rubedo" or reddening implies the heating up – the return of passion and enthusiasm – signalling a time of renewed purpose and committed action in the organization (Stein, 1992; Wingard, 1994).

### **Alchemical theory in practice**

Wingard's alchemical approach is best exemplified through one of several case studies she related in our interview. In this case, over a period of 15 years, two separate executive groups managed a well-known service organization of 50 staff members. Poor communication, outdated systems and animosity between the two groups had created a hostile working environment and excessive customer complaints.

By the time she was hired, the entire organization was in crisis – there seemed to be a complete lack of "soul" among the staff. As Wingard (and Whyte, 1994) suggests, soul is often more evident by its lack. "It's like a loss of humanity – people are diminished in their own eyes and each other's. Projection and blame become the focus of conversation". She encountered immediate resistance in her round of interviews, with comments such as, "You're out of your mind" and "We've had five consultants in here, nothing changes". The leadership also expressed scepticism, stating, "I hate having to even go to that floor and walk around. It's grim".

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Inside the organization elements of “shadow” were everywhere. Wingard told me:

When I was brought on board – I cannot even begin to tell you how bad it was. Threats were being made, turnover was continuous, grievances were being filed ... gossip and innuendo were the main forms of [communication]. ... The only holiday they celebrated was Hallowe'en when everyone dressed up in bizarre costumes. ... A walk into the restroom showed the graffiti, “actions speak louder than posters”. It was shadow at work.

This shadow, and the possibility for transformation held within it, was cast by the leadership vacuum that existed within the two groups. One inexperienced manager perpetuated the splitting and hostility among the staff. The anguish expressed by the employees caused by the continued dysfunction corresponds to the alchemical phases of “nigredo” that Jung described as the dark night of the soul. “It was a bleak atmosphere, with constant crises, outbursts, and crying as part of daily interactions among the staff”.

Finally, after six months of coaching and support, the manager chose to leave. At this point, the change moved into the alchemical “albedo” phase of reducing the elements to their essential nature. In contemporary terms, people began to strip away defensive patterns and soberly examine 15 years of polarization between the two groups. “They started to talk about how exhausted they were from carrying on the continual strife”. Ellen used critical conversation, conflict negotiations and community dialogue as tools to create a safe container, so they could begin to address their long history of assumptions, fears, and animosities. They embarked on an analysis of their service delivery and discussed their common ground and agreements in providing their service. Members began to identify the contributions made by the other group. “Slowly, the edge of tension that was in the atmosphere started to dissipate”. Systemic solutions rather than attacks on each other became the focus of regular meetings; over time a sense of hope started to emerge in the group.

Concurrently, another manager who had worked closely with Ellen chose to return for a business degree and leave her position. So now there were two open slots, “and it was clear that the organization needed leaders rather than a consultant to hold the situation together”. These two leadership slots became the cauldron in which the transformational breakthrough occurred.

Alchemical theory says that the success of a change effort depends on how well the cauldron is used; according to her theory, the right leadership here could shift the organization into the “rubedo” phase, igniting new creativity and regeneration in the group. Thus, finding and hiring these two leaders represented the critical moment in this organizational change effort. Here's how she describes that moment and its outcome:

One of the members had a brainstorm about a highly capable manager who had just been laid off in another part of the organization. Another member received a résumé from out of state, and within weeks these two individuals were hired. ... And these two people showed up at exactly the same time, and they started on the same day ... They began to build a partnership that was the beginning of a profound shift in the department.

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... I believe it was grace that brought these two people. One had years of experience in management and is trained in group dynamics while the other brings quality improvement expertise. ... .. It created a background for a true team management focus.

This was a time of renewal for the department where the “gold” or intelligence of the group began to be evident by the skilful leadership of these two individuals, who each gave their attention to both people and process:

It was exciting to see the level of dramatic change in morale, efficiency and customer satisfaction that occurred. Certainly more turnover and instability continued, yet over time a supportive, interdisciplinary community emerged as did a sense of pride and fulfilment. The best reward was completing the contract and seeing that my role was no longer necessary.

In revisiting this case in preparation for publishing this paper, Ellen told me that many changes had occurred in the intervening four years but the transformation had endured. The quality improvement manager left after he had “accomplished what he had hoped to and moved on to the next challenge”. The other manager continues to provide leadership to the entire group, “and is sought after in other departments of the organization for her expertise and insight in bringing out the potential of merging teams”. Finally, even though this industry is faced with great turbulence, “members interact, solve issues and demonstrate a resilience in providing high quality services”.

*Discussion.* What stand out in this example? Ellen used her alchemical theory as a blueprint for designing and carrying out the intervention, yet once the two original managers were gone, there were no more direct steps she could take. Instead she stabilized the “container” for change by helping to develop the existing skills of individuals in the department, and waited for the “right people” to fill the leadership vacuum. In the end, the transformation was completed not through the logic of theory or a step-by-step follow through but by a *synchronicity* of timing. In effect, this change effort was successful because she used her theory while at the same time was open to moments of “grace”.

#### *Magic – organizational learning of Peter Senge and the “Center”*

By all appearances, Peter Senge and the Center for Organizational Learning (COL) have a well-defined theory of organizational learning, change, and transformation. As an integrated approach for creating a “learning organization”, Senge and his associates combine research and practice within a consortium of organizations that is the Center itself. While many people contribute to the theoretical work of the Center (e.g. Isaacs, 1993; Kim, 1993; Kofman and Senge, 1993; Ross *et al.*, 1994) the basis of the work is Senge’s best-selling book, *The Fifth Discipline* (Senge, 1990).

As the title suggests, the core of the work is a synthesis of five “disciplines” of a true learning organization:

- (1) *Mental models* requires an inquiry into our beliefs, actions and effects in the world (c.f. Argyris *et al.*, 1985; Bartunek, 1984; Boulding, 1956).
- (2) *Personal mastery* means “ ... living life from a creative as opposed to reactive viewpoint” (Senge, 1990, p. 141).

- (3) *Shared vision* connects the individual, the group and the organization through a sense of communality that can permeate the company.
- (4) *Team learning* occurs when diverse perspectives are appreciated and even sought after within the organization (Isaacs, 1993; Kim, 1993). In team learning the essential tool is dialogue, a discipline “... of inquiry for transforming the quality of conversation and the thinking that lies beneath it” (Isaacs, 1993, p. 25).
- (5) The fifth and perhaps most unique discipline of the Center is *systems thinking*. Systems thinking sees the world as a united web of relationships; it’s a theory of process rather than a source of content about organizations. Through structured modelling techniques, long-standing patterns of behaviour can be identified, described, and hopefully changed. “The bottom line of systems thinking is leverage – seeing where actions and changes in structures can lead to significant, enduring improvements” (Senge, 1990, p. 114). Hands-on computer-based “micro-worlds” developed by John Sterman and others at the Center help “managers and management teams to begin ‘learning through doing’ about their most important systemic issues” (1990, p. 313).

The Center’s focus on relationships begins with an intensive five-day course offered to all consortium members. “The five day program ... is really a joint exploration of the deeper epistemological foundations of this work. What would it mean to live life from a systems perspective?” (Senge and Kofman, 1993). The course is designed to begin a long-term collaborative effort where theory can meet practice in real time. From the perspective of the Center, “A collaborative may be the only way to achieve major breakthroughs in the practice of organizational learning” (COL, 1994). In this way the structure of the COL is fundamentally different from either a consulting model or a training model. In our interview, Senge said:

[In a consulting model] you’re trying to deal with problems. We’re trying to create new capabilities, so in that sense it’s not technically therapeutic. ... Secondly, I really do think of ourselves as engineers, rather than interveners. ... In this case we’re trying to construct learning processes [which] should result in capabilities that the people didn’t have before. I think of these capabilities as emerging as a by-product of the work. That’s fundamentally different from any training model (Senge, 1992).

The theme of the course, which has been described as “the heart of learning organizations” (Kofman and Senge, 1993), is a three-fold shift of perspective: moving from analytical to systemic thinking that focuses on the interrelationships between systems; understanding that one’s identity is constituted through community and therefore the nature of the “self” is always in flux; and that we literally create our reality through our language. According to Senge, however, the most important purpose of the five-day programme is its value in creating relationships between COL researchers and member organizations. “There’s nothing, nothing, nothing as important as the quality of relationships ... Relationship building happens before we go anywhere ...

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We've put together our five-day programme as the primary vehicle for doing this." Thus, in a real sense, the critical transformation is becoming aligned as a group during the five-day course, to initiate a truly collaborative learning community.

*The learning collaborative in practice:* When I asked Senge about his theory and how he uses it in practice, his focus on relationship was primary: "I just can't identify with 'What's my theory?' I don't even have a theory. We're working together. Now, we have some visions. But even those continue to be articulated as we work together." To exemplify his claim, he related an incident that seemed to be at the crux of the success of a recent five-day programme. His imagery is so descriptive that I'll include most of his story:

Now what really worked? It was the last programme ... we were into the end of the fourth day, and the course still hadn't gelled. Now, what do I mean "gelling." I don't know, but you get to a certain part in the program – and I've done this for so many years – and you just know it; you know it can't fail. ... And I knew we weren't there.

And at the end of that fourth day ... we did this beautiful little exercise which I'd never done before that Bill Isaacs put together with some of his colleagues in the Dialogue project ... We had four circles with about ten people each, sitting in a circle with blindfolds. And they just talked. Now everything exists within its context. This is the end of the fourth day of a five-day program and there's been a lot of ups and downs. Dialogue has been something we've been talking about and sort of getting into little bits and pieces here and there.

First off, in those four groups nobody ever interrupted anybody. You could feel every comment built upon the next. ...

Of course, nobody could see anybody else, but you could see their bodies start moving together ... They would lean in together, they would lean out together, they would move together – it was beautiful. Then we started to become aware that all four circles were moving together. And I turned to Fred [Kauffman] and I said, "Fred, this is like a quartet." And you could just feel, there is an extraordinary energy in this room. It was just this incredible, clear conversation, where a voice would speak and a voice would speak, and when it was all over people just sort of walked out shaking their heads ...

I want to tell you, something really magical happened. Everybody felt it.

We knew this is what we were here for. We had started to achieve something ... It pretty much continued the whole next day ... The quality of these conversations is incredible.

And, when we finished the day we all sat in a circle ... and listened to ... a piece from Mozart's *The Marriage of Figaro* – it was incredible other-worldly music – beautiful beyond description. And there was about a minute or two when nobody said anything. The first person to speak [a technical engineer] said, "I can't believe how much I love all of you". And, you just knew that something had happened.

So, I don't know, that probably says a lot about my theory! But there's something about coming together, and recognizing very deep fundamentals about us, together, in the context of a community of action.

*Discussion.* How can this transformation be characterized? Peter Senge and the Center use the five-day course as a vehicle for generating a relational shift among their collaborators. In this example, although the course was nearly finished, the shift hadn't yet taken place. In a way his "theory" had led the group

to a certain stage, but previously designed techniques weren't accomplishing the sought-after transformation. At this point a newly created dialogue exercise was tried as an experiment in the course. And, for reasons that may have more to do with luck than with careful planning, out of the exercise emerged "incredible" conversations, which had a tremendous impact on participants and leaders alike. Here again, the successful result was generated not only from following the course's design, but also from being open to something "magical" happening there too.

*Miracles – developmental theory and practice of Bill Torbert*

Over the past 30 plus years, Bill Torbert has been carefully formulating and testing a complex theory of development and change, at both the individual and the organizational level of analysis. His theoretical work spans the fields of learning, development and change of individuals and organizations, as well as the development of new analytic frameworks for economics, political science, history, and social science methodology (Fisher and Torbert, 1995; Torbert 1973, 1978, 1987, 1989, 1993). At the same time, he has been a change agent in organizations large and small since the late 1960s, effecting numerous transformations for individuals, groups, and large companies. Torbert has been noted for his career-long exploration of developmental theory, which originated with the work of Piaget (1966) and was more recently expanded to adults through the work of Loevinger (1976), Kegan (1982), Kohlberg (1969), Wilber (1995), and Torbert himself.

In Torbert's formulation, individual managers can grow through successive stages of development, each involving greater levels of complexity, responsibility, empathy, understanding of the world, and appreciation of the undefined creative potential of each moment. Identifying a manager's stage of development can be accomplished through Loevinger's highly reliable sentence completion test (Fisher, 1995; Loevinger, 1976) or with less quantification through interviews, personal interactions, language structures, body language, and so forth. The focus of Torbert's work has been on developing tools to support managers in moving to successively more complex levels of development (e.g. Torbert, 1978; 1987).

Organizations, like individuals, have also been shown to move through a relatively predictable series of stages in their development (Greiner, 1972; Quinn and Cameron, 1983; Torbert, 1987). Torbert has shown that these stages are parallel in form and content to those of personal development, and that a change in developmental stage represents a transformation for the organization (Torbert 1987; 1989; 1991). He also found an oscillating pattern of centralization and decentralization as organizations move from one stage to the next. Unusual later stage "liberating structures" support adult development while simultaneously accomplishing productive work.

Bringing oneself – or one's organization – to a later stage of development, according to Torbert's theory of "action inquiry", requires focusing attention "inquiringly" on to multiple areas of experience. Incorporating inquiry into

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one's daily behaviour requires being open to feedback, and thus being vulnerable to disconfirmation of one's beliefs or points of view. The ability to be vulnerable is an essential part of Torbert's approach, for it is foundational to creating a mutual "transforming power" that literally facilitates organizational transformation, unlike common, unilateral forms of power which are literally powerless to generate transformation (Torbert, 1991, 1993).

*Developmental theory in practice.* Bill Torbert uses his theory as a base and a blueprint for creating organizational change. As the following short excerpts derived from case study examples show, he begins from a qualitative analysis of the organization's stage of development, and attempts to understand the developmental stage of the members of the top management team. Then, through careful preliminary framing and strategic choreography, he creates a transformational opportunity – in this case the possibility for one member of the team to become vulnerable in a public setting, which opens the space for an overall transformation in the team, and the organization as a whole. In Torbert's words:

First of all, I bring a developmental perspective which I apply to the organization as a whole from the very first moments ... According to developmental theory, depending on the stage you're in among other things, you're either going to be [structurally] centralizing more or decentralizing as you move to the next stage. And that will flavor all of my interventions. Sometimes I will appear much more directive and structuring in my relationship with the client, while with other clients early on in the process I will appear much more opening and choice-generating. ... Now of course that's in turn affected by my growing sense of the stage of development of the individual people that I'm interviewing. I always begin the consulting process by a series of interviews with at least senior managers, and then sometimes other people in the organization.

The process for gaining these interactional data derives from Torbert's theory of "action inquiry", which is guiding his behaviour at the individual and the organizational level. "Emotionally I am trying to create a mutual situation, trying to share my vulnerabilities and uncertainties as I'm inviting them to share their vulnerabilities and uncertainties". At the organizational level, Torbert sets up a series of meetings to "align ... the senior management team in the new version, in the new reality". Those meetings, however, have another purpose, which might be described as generating a "transforming power" (Torbert, 1991; 1993) among the group. This seems to be key to his whole effort:

[There is] a critical moment in the development of a consulting intervention, a moment when typically one person in the company takes the lead to be publicly vulnerable and accepting of major feedback and transforming that feedback into a commitment to act differently. I seem to be looking for that. ... When it happens, what it does is it transforms the atmosphere in the whole senior group ...

Using developmental theory, Torbert can begin to identify who this person might be:

I'm looking just in a normal way to see where the convergence of tensions are in a personal sense, because that person is a natural candidate. I'm also looking for somebody who appears to be at a late enough stage of development that they can personally see the reason for doing this.

At this point in our interview I asked Torbert what he does to create this critical moment. “Do you consciously think about creating that moment, and ... what do you do to set that moment up?” His response, culled from a variety of case examples he had been describing, was surprising to me:

First of all, I certainly do consciously try to set it up, although I also recognize that I have to work with the materials that are there, and that it is always a miracle, and it can't be forced.

*Discussion.* What is the essence of this transformation? Like the previous two practitioner/researchers, Bill Torbert uses his theory as a base for designing and facilitating a developmental shift in a group; the theory's prescriptions set the stage for the desired change. Yet, the transformation itself relies on a critical moment of publicly shared vulnerability, and must emerge out of the elements and personalities that currently exist in the group. Thus while his theoretical perspective helps him organize that spontaneous moment, the moment itself, and its powerful impact, can never be predicted or rationally designed. Here again, a successful transformative effort is generated through the logic of theory and equally so through the unforced presence of “a miracle”.

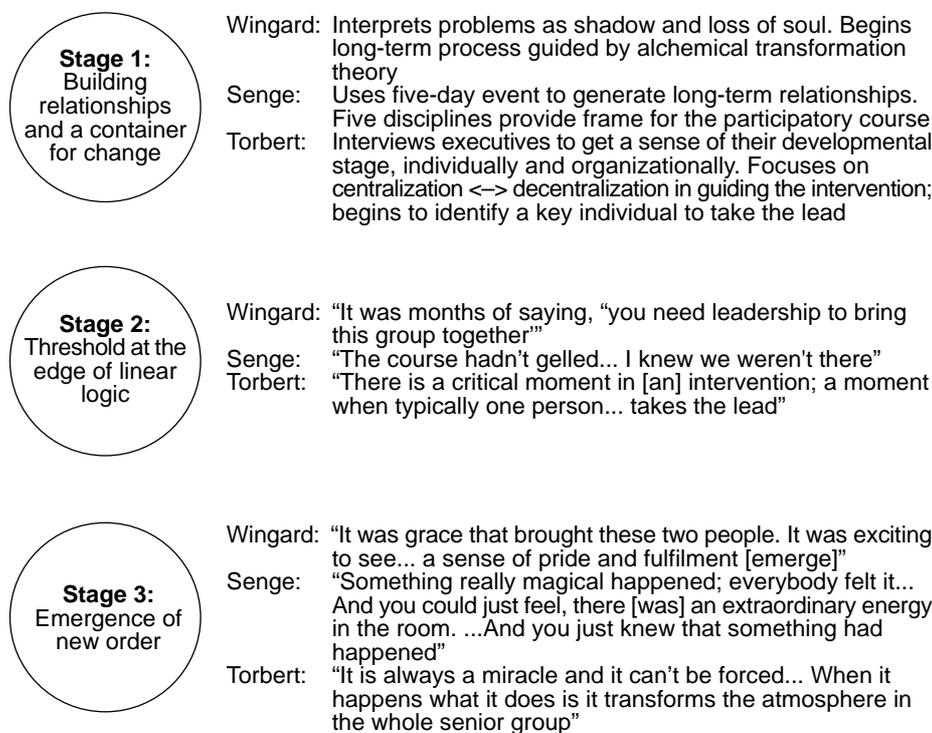
### **Commonalities of the three theories**

Is there a common logic amongst these theories? In terms of the *content* of the three approaches, there seems to be little in common. Whereas Ellen Wingard focuses on the breakdown and regeneration of soul in an organization, Peter Senge focuses on the co-engineering of learning processes in an organization, increasing the capabilities of the people within. In Senge's approach, vulnerability is more a result of the learning process, whereas Bill Torbert uses vulnerability as a means by which transformation can be generated. And, in Torbert's “action inquiry” the practitioner is deeply integrated into the organization's development, whereas in Wingard's alchemical model, the practitioner is more of a process consultant (Schein, 1987) who acts to create a strong container, and “witness or intuit what needs to happen” (Wingard, 1993). Content-wise, these represent different approaches to planned change.

However, in terms of the *process* of these approaches, I see a distinct similarity of “logic”. In all three cases, the practitioners/theorists utilize their theory or approach as a blueprint for the change – the theory is useful up to a certain point, then the planned approach reaches a kind of threshold. At that point something unique happens – grace, magic, or a miracle – that seems to signal the actual transformation. This process logic can be formalized through a simple three-stage model, described below (See Figure 1).

#### *Stage 1: Building relationships as a container for change*

At the beginning of these interventions each practitioner/theorist focuses on building relationships with the organizational members. As the practitioners connects themselves to the group and the situation at hand, a kind of container is developed that holds within it a building trust and commitment to mutual communication. This comes through clearly in Ellen Wingard's alchemical



**Figure 1.**  
Three-stage model of  
the interventions

approach which describes the process as creating a container or a vessel for change. In Peter Senge's approach, relationships are at the heart of developing learning organizations, and the five-day course is a vehicle for developing close collaborative ties with new members of the Center. Similarly, Bill Torbert initializes his developmental work through emotionally creating a situation where vulnerabilities and understandings are mutually shared.

*Stage 2: Threshold at the edge of linear logic*

In the next stage, each of these practitioner/theorists identify a critical moment in the transformation – a crux or threshold at which the entire effort seems to hang in the balance. Ellen Wingard describes this threshold in terms of the delicate hiring process that she saw as a key to the long-term success of the organization. Peter Senge expressed a threshold in his recognition that "We were into the end of the fourth day, and the course hadn't gelled ... I knew we weren't there." Bill Torbert too perceives "a critical moment in [an] intervention", guided by a "convergence of tensions" in the organization.

Up until now, in all three cases, the theory has provided a prescriptive blueprint for generating change. However, at this threshold the logic of the theory is pushed to its edge, and a precipice of sorts is reached. At this point, rational design and analytical action may actually impede the goals of the

intervention. Only by moving beyond logic and reasoned action can the transformation be sparked.

*Stage 3. Emergence of new order*

Finally, a resolution is found – a resolution that originates beyond theory, outside of rational expectation. For Ellen Wingard, “grace” happened in the appearance of two ideal leaders who brought with them the capabilities the organization needed. For Peter Senge, a “magical” moment occurred as participants used dialogue to connect with each other in a completely fresh and new way. For Bill Torbert the “miracle” of transformation is sparked when a top manager shares his or her vulnerability; his or her commitment to behave differently can generate a felt shift in the behaviour of the entire top management team, and correspondingly in the organization. In these cases there is a new “faith” in the capacity to create a better future through new initiatives or behaviours, rather than continually blame past errors for the organizational “stuckness”.

Why grace, magic or miracles? By definition these terms identify phenomena that cannot be scientifically or logically explained. Formally, grace is defined as “unmerited divine assistance”, magic means “an extraordinary influence seemingly from a supernatural source”, and miracle is defined as “an extraordinary event manifesting divine intervention in human affairs” (*Webster’s*, 1996). These words connote a felt sense of going beyond theory and rational action, suggesting that the actual transformation is out of the (rational) control of the practitioner. That is, as the theory is stretched to its limit, what *actually sparks* the transformation is somehow beyond theory, unreachable through logic, not tied to rationality. What then can be the “logic” behind this process?

**Towards a “chaotic logic” of transformation**

The disciplines of chaos, complexity and self-organization may provide an answer that is both beyond linear rationality and yet has a reasonable logic. These new sciences describe systems that are a mixture of predictability and unpredictability, stability and instability, control and spontaneity (Gleick, 1987; Stacy, 1995; Thietart and Forgues, 1994). Under certain circumstances, when such dynamic interdependent systems (like organizations) reach a critical threshold, new regimes of order can spontaneously emerge “out of chaos”, shifting the system into another level of development (Arthur, 1990; Goldstein, 1986; Jantsch, 1980; Kauffman, 1993; Laszlo, 1987; Prigogine and Stengers, 1984). Indeed, organizations and individuals at the most transformationally-complex stage are said to be operating according to “chaotic logic” (Fisher and Torbert, 1995: ch. 11). This emergence process can be summarized in a three-phase “chaotic logic” of organizational transformation that parallels the commonalities described above.

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*Phase 1: Relationality and dynamic order*

The organizational sciences of emergence describe reality as a web of interconnected relationships, not a collection of discrete objects ( Capra, 1996; Goerner, 1994; Kofman and Senge, 1993). Since this web of relationships is constantly changing the question is not “why is there change?” but instead, why and how does organizational order emerge and become relatively stable amid this flux of change? (Mauws, 1995; Thietart and Forgues, 1994). The answer seems to be that relationship building itself is a dynamic structure that produces a certain kind of order (Weick, 1979). Specifically, the sciences of emergence focus on organizing (in the Weickian sense) rather than on “organizations” *per se* (Gartner, 1985; 1993). This is reflected in each of the practitioner/theorists, who begin and orient their intervention in terms of relationships. In Senge’s words, “There’s nothing, nothing, nothing as important as the quality of relationships”.

In addition, it seems as though these evolving relationships provide a transformational fulcrum of trust and meaningful inquiry around which new behaviours can emerge. In each case the three practitioner/theorists used the process of building relationships as the lever through which change could be conceived. The consultants thus become an active part of the system (Torbert, 1991) which gives them and other participants the capacity to transform the organization from within. Wingard remained integrally involved in this particular group for several months following the change and checks in periodically to assess sustained progress, and Torbert is on the board of directors of several “client” organizations.

Research using complexity theory (Holland, 1995; Lewin, 1992) has shown that simple rules can create very complex behaviour; that even a small number of simple behaviours, when iterated over time, can generate unexpectedly rich complexity (Waldrop, 1992). Others have recognized that individual-level action is the spark for organization-level change (Argyris and Schön, 1978; Bacharach *et al.*, 1996). Uncovering these “rules” or habits of individual behaviour is key to generating group level shifts. This is seen in Senge’s disciplines of mental models and personal mastery that generate organizational level learning, and in Torbert’s focus on individual development as a fulcrum for organizational change.

*Phase 2. At the threshold of order*

How do these levers or fulcrums actually work? One condition for the emergence process has been called “the butterfly effect” (Gleick, 1987; Kauffman, 1995; Wheatley, 1992). Emergence researchers have found that dynamically ordered systems in far-from-equilibrium conditions are non-linear, therefore highly sensitive to certain influences. In some cases putting a huge amount of energy into these highly sensitive systems results in no change whatsoever; whereas in other cases one small action can be amplified dramatically to impact the entire organization. This amplification phenomenon is fancifully called the butterfly effect, the hypothesis being that the flap of a

butterfly's wings on one continent can be non-linearly amplified creating a domino effect that can result in powerful storms on another continent (Lorenz, 1963)[2]. These non-proportional phenomena are exemplified in the cases. Wingard talked about the synchronicity of finding new leaders, who started on the same day, after months of effort to preserve the previous leaders' roles without results. On the other hand, Torbert looks for a single moment of vulnerability from one person as a catalyst to transformation of the entire group and the whole organization.

These dynamic interdependent systems operate within certain limits of stability, but when they're pushed to the edge of their capacity, unstable far-from-equilibrium dynamics take over (Goldstein, 1994). As pressure for change increases, tensions rise to a certain threshold of order (Bigelow, 1982). In this highly sensitive state, the system seeks new ways to organize itself, to develop new levels of capacity or a new more complex regime of order. At this point, fluctuations and experiments are common; these experiments are often unspoken thoughts that do not get expressed until things reach the edge.

All three case studies show this behaviour. As the practitioner/theorists pushed their organizations to a threshold of change, the transformation was not immediate, instead strange phenomena and unexpected events actively surfaced. For example, in Wingard's case, continuous crises and outbursts culminated in a public outburst and a key individual left. In Senge's five-day case, when the course didn't "gel" he experimented for new ways to generate transformation in the group.

According to the excellent work of Goldstein (1986; 1994; 1995) these unexpected events and experiments are the catalysts for change. In far-from-equilibrium conditions, "Random departures from equilibrium are noticed, encouraged, amplified, and eventually incorporated" into the system (1994, p. 13). This idea is central to alchemical theory which views shadow elements as the catalysis for the "untransformed essence of the gold to come" (Stein, 1992). Torbert also recognizes that transformation is sparked at the confluence of tensions. In his words:

The origin of change lies between – in bridging incongruities between sides of oneself, between organizational members, or between the organization and the market/environment. Thus, as the system is pushed to its edge one unexpected occurrence can be amplified and spark the emergence of new order.

### *Phase 3. Self-organization and emergence*

From the seed of change and its amplification, a new order can emerge or self-organize in the system. Specifically, an iterative, cyclic process extends the fluctuation throughout the system: "The fluctuation ... must first establish itself in a limited region and then [move through] the whole space: there is a nucleation mechanism" (Prigogine and Stengers, 1984, p. 189). Through these iterations a positive feedback cycle kicks in, resulting in a new resonance of the structure. In self-organization, the pattern of dynamic order that emerges radically increases the capacity of the system, allowing it to handle new levels

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of complex behaviour while being even more balanced than before (Goerner, 1994; Swenson, 1992). “[W]hen a new cultural structure emerges ... a new cognitive map [is produced] containing new values ... that more efficiently match environmental realities” (Artigiani, 1987, p. 256).

All three cases show this iterative expansion of an unexpected event that becomes the seed for new behaviours in the organization. Senge says “You could feel every comment built upon the next ... It pretty much continued the whole next day”. Similarly, Torbert looks for “a critical moment” that begins with one manager accepting public feedback, and continues when she/he “transform[s] that feedback into a commitment to act differently”. This commitment leads others to exercise new behaviours of public vulnerability and commitment that in a short time “transform the atmosphere in the whole senior group.”

In this way the origin of self-organized change comes from within the system, i.e. change is “self-referenced” to experiences or values in the system (Jantsch, 1980; Smith and Gemmill, 1991). “[F]ar-from-equilibrium conditions brings out the system’s own capacity to transform itself” (Goldstein, 1994, p. 139). In fact, empirical studies have confirmed that self-referenced change dramatically increases performance, whether in self-organized groups (Smith and Comer, 1994), in organizations facing turbulent environmental change (Haveman, 1992), or in companies undergoing emergence (Gartner, 1993) and transformation (Guastello, 1995; Tushman and Romanelli, 1985).

The “grace, magic and miracles” case studies offer excellent examples of self-referenced self-organized change. In Wingard’s case, the leaders that were hired had the capabilities to continue to transform the department. In Senge’s case, the shift they were looking for occurred not through formal training exercises but through a dialogue of self-generated conversations. Thus, the content of the transforming conversations was internally-based, not given from the authoritative practitioner, Senge. In Torbert’s case it is one individual’s vulnerability and the group’s response that originates a shift to new patterns of behaviour; as he said: “I have to work with the materials that are there ... and it can’t be forced.” Together, these transformations can be understood as self-organized emergence of new order in each of the organizations.

### **Conclusion – is there a logic of transformation?**

Is organizational transformation “logical”? According to these case studies, there is a logical framework that produces rational actions in the first stages of an intervention effort. However, at a critical threshold it is non-linear logic and spontaneously felt action – grace, magic and miracles – that actually support organizational (and personal) transformation. What I’ve endeavoured to show is that a science of emergence can integrate the deductively logical and non-linear aspects of this process, through understanding the dynamics of far-from-equilibrium dynamical systems. These complex systems show how seemingly random events occur as high degrees of order, and why unexpected events can

become amplified into new regimes of order that increase the capacity and functionality of the organizational system.

We need to be careful, however. These ideas are metaphors. While they've been empirically confirmed in a small handful of studies (notably Cheng and Van de Ven, 1996; Greshov *et al.*, 1993; Smith and Comer, 1994), other writers disagree with the use of these sciences in human organizations (e.g. Johnson and Burton, 1994). In fact, there is a great deal of conflict as to the viability of using theories from mathematics and the natural sciences as analogies in human systems at all (Penrose, 1959). Additionally, I've made a lot out of a little, generating a whole "chaotic" model of transformation out of a dozen or so case studies given by a very non-random sample of individuals. Also with an  $N = 3$ , the suggestion that organizational transformation can be generalized in terms of a science of emergence may even be misleading.

Nonetheless, I believe these case studies are not unique; while they don't exemplify the mainstream of organizational theory (e.g. March, 1965; Porter, 1980), they do affiliate with a growing movement of practitioners and theorists interested in identifying the non-linear and intuitive aspects of change in organizations and beyond (e.g. Arthur and Rousseau, 1996; Chappel, 1993; Ray and Rinzler, 1993; Whyte, 1994). Ultimately the goal is to provide tools and levers to increase the probability of lasting organizational change both theoretically and practically, at a time when such changes are needed both economically and throughout our chaotically changing society as a whole.

#### Notes

1. I am indebted to a reviewer for making this connection for me. Much of my previous work has focused on these issues in a more theoretical sense (Lichtenstein, 1995); making the bridge to practice has been a very useful if tentative process!
2. Technically speaking, Lorenz (1963) discovered an even more startling result, the principle of sensitive dependence on initial conditions. He found that in moderately interactive systems like simplified models of the weather (i.e. using only three variables), even the smallest computational rounding error gets amplified very rapidly, changing the results of the simulation. That is, even the most powerful computer must round up at some point; this rounding error is iterated over and over, such that the results represent a "chaotic attractor" – in this case the Lorenz attractor – which identifies a bounded region of activity which is simultaneously deterministic and unpredictable. This characteristic of a chaotic attractor is what Stacy (1995) refers to as "boundedly unstable" and I referred to above as "a mixture of control and spontaneity."

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