



An overview of intentional change from a complexity perspective

Intentional
change

Richard E. Boyatzis

Case Western Reserve University, Cleveland, Ohio, USA

607

Abstract

Purpose – Change, and in particular intentional or desired change, has not been understood nor systematically studied. By applying concepts from complexity theory to intentional change theory, the purpose of this paper is to provide a new level of insight into why and how sustainable desired change can occur at all levels of human/social interaction, from individual to teams to organizations to communities, countries and the globe.

Design/methodology/approach – Using research from over 30 years of longitudinal studies of individual and organizational change, the concepts are explored and implications proposed.

Findings – Sustainable, intentional change is on the whole discontinuous. It occurs through a series of five discoveries or emergence conditions. It is driven by the interplay of the positive and negative emotional attractor. It follows the described process at all fractals of human organization.

Research limitations/implications – Extensive empirical research has been done at the individual level, but only case studies at the organization and country levels.

Practical implications – Every person seeking to explore, understand, or facilitate sustainable, desired change can be helped by the model and understanding how it functions.

Originality/value – The theory of intentional change is relatively new to the literature, as is the use of complexity theory.

Keywords Change management, Complexity theory, Individual development

Paper type Conceptual paper

For all of the time, effort, and money invested in attempts to help individuals develop through education, training, and coaching, there are few theories that help us to understand the change process. Other than Prochaska *et al.* (1992) and McClelland (1965), the actual process of change is left like a mysterious black box. Theories or models of how teams, organizations, communities, countries or even global change occur are more frequent but are often a *post hoc* description of how the consultants or change agents went about the process. As a result they lack the depth and utility of sound theory. Each new framework has the potential of being a new “change fad”, but seldom are they put to the empirical test of demonstrating sustainable results.

One of the reasons for this paucity of good theory is that the underlying paradigm on which they are conceptualized is lacking in credibility. The idea of smooth, continuous change does not fit with the reality most of us experience. In this paper and this entire Special Issue of this journal, we will describe a theory of change that has produced demonstrable results at the individual level, and, we believe, explains change at other levels of human and social organization. We also go on to explain that it requires the use of complexity theory to understand the process of change. Once concepts from complexity theory are applied, it then becomes a distinct possibility that this theory of change helps to explain sustainable change at all levels of human and social organization.



The three features of complex systems and complexity theory that will be explored are:

- (1) non-linear and discontinuous dynamical systems, including tipping points and catastrophic change;
- (2) self-organizing into patterns of equilibrium or disequilibrium in which emergent events start a new dynamic process through the pull of specific attractors; and
- (3) fractals or “multileveledness” (the application of this theory at all levels of social organization) and the interaction among these levels through leadership and reference groups.

A complex system is a multi-level combination of systems that may behave in a way independent of any one of the component systems (Complexity Forum, 2001-2003). It is more than a simple system (at a single level) or a complicated system, such as non-linear dynamics within a simple system (Complexity Forum, 2001-2003). When different simple systems are combined or integrated, the result is typically a large and complicated system. But to be a complex system it must have:

- overall output that interacts (e.g. is emergent) or caused by a coordinator or agent between the levels; and
- the output is different then the output at other levels (Complexity Forum, 2001-2003).

Combining several linear systems may lead to a large linear system that is still not a complex system, unless some non-linearity or discontinuity develops. In this sense, complex systems are evolving and often described as adaptive.

Specifically, to be a complex system, it must have:

- structure; and
- function (Complexity Forum, 2001-2003).

The structure includes, at the minimum: scale, architecture, and interaction. Scale refers to the multiple level of systems that are mirror images of or comparable to each other. It is also referred to as fractals, hierarchy of scale, or stratification that is something is visible and meaningful at different degrees of magnification or focal points (each unit at one level is a system at the next level down). Architecture is a model or description of how the components affect each other. Interaction is the methods of merging, integrating, coordinating, or emerging that occurs between the levels of the complex system.

Function includes, at the minimum: dynamics as described by differential equations, chaotic or periodic relationships, and such; the possible existence of various types of attractors; and the possible ways the inputs relate to the outputs. It is a complex system when the system description is simpler than the behavior or functioning of the system. Now let us turn to how people and social systems change.

Intentional change

Intentional change theory (ICT) is a complex system. At the individual level, ICT describes the essential components and process of desirable, sustainable change in

one's behavior, thoughts, feelings, and perceptions. The "change" may be in a person's actions, habits or competencies. It may be in their dreams or aspirations. It may be in the way they feel in certain situations or around certain people. It may be a change in how they look at events at work or in life. It is "desired" in that the person wishes it so or would like it to occur. It is "sustainable" in that it endures – lasts a relatively long time. In this sense, ICT may be said to describe and explain learning as a form of this desired adaptation or evaluation. Indeed, the name of the theory was self-directed learning for many years (Boyatzis, 1999, 2000; Goleman *et al.*, 2002). Although it may apply to younger people, the work cited here and the focus of its development over the last 38 years has been on adults.

A "desirable, sustainable change" may also include the desire to maintain a current desirable state, relationship, or habit. But knowing that things can atrophy or drift into a less desired state, the desire to maintain the current state requires investment of energy in this maintenance while external (or internal) forces may naturally provoke a change.

Desired sustainable changes in an individual's behavior, thoughts, feelings or perceptions are, on the whole, discontinuous. That is, they appear as emergent or catastrophic changes over time and effort, which is an essential component of complex systems (Casti, 1994). The experience is one of an epiphany or discovery (Boyatzis, 1983). Self-awareness or mindfulness (of self and context, both social and natural) (Boyatzis and McKee, 2005) is inversely proportionate to the degree of surprise or discovery. When one is highly self-aware, he/she will experience the change process as more of a set of smooth transitions.

The same forces result in the changes often being non-linear. So, this brings us to the first feature of ICT as a complex system. The change process is often non-linear and discontinuous, appearing or being experienced as a set of discoveries or epiphanies. They are emergent phenomenon that used to be described as catastrophic occurrences.

For example, in trying to predict performance from individual characteristics, studies have overlooked the tipping point concept (Holland, 1995). Gladwell (2000) popularized the idea and showed how it often can explain the sudden outbreak of a riot, a run on a bank, surprising stock market drops, and such. This idea, taken from complexity theory, is that up to a certain point, the relationship between a person's abilities and their performance may not appear to exist. But once a specific point is reached, a discontinuity occurs and the effect of a small incremental increase in the person's behavior produces a dramatic increase in effectiveness (McClelland, 1998; Boyatzis, n.d.). This relationship has also been referred to as "the butterfly effect" or trigger point. We believe an analogous dynamic affects the process of change, which is why its documentation may not have appeared in research using continuous statistical methods or without sufficiently frequent measurement of effects to note a point of discontinuity or tipping point.

What the studies reviewed in the next section of this paper show is that adults learn what they want to learn. Other things, even if acquired temporarily (i.e. for a test), are soon forgotten (Specht and Sandlin, 1991). Students, children, patients, clients, and subordinates may act as if they care about learning something, go through the motions, but they proceed to disregard it or forget it – unless, it is something which they want to learn. This does not include changes induced, willingly or not, by chemical or hormonal

changes in one's body. But even in such situations, the interpretation of the changes and behavioral compoment following it will be affected by the person's will, values, and motivations. In this way, it appears that most, if not all, sustainable behavioral change is intentional.

The process of intentional change is graphically shown in Figure 1 (Boyatzis, 1999, 2001; Goleman *et al.*, 2002). This is an enhancement of the earlier models developed by Kolb *et al.* (1968), Boyatzis and Kolb (1969), Kolb and Boyatzis (1970a, b), and Kolb (1971).

It is important to note that often an intentional change process must begin with a person wanting to change. This desire may not be in their consciousness or even within the scope of their self-awareness. Wake-up calls, or moments and events that awaken the person to the need for consideration of a change, may be required to bring the person to the process of desired, intentional change (Boyatzis *et al.*, 2002). Before we get into the details, let us step back and ask why we believe this is a sound theory of change.

How do we know it works?

Decades of research on the effects of psychotherapy (Hubble *et al.*, 1999), self-help programs (Kanfer and Goldstein, 1991), cognitive behavior therapy (Barlow, 1988), training programs (Morrow *et al.*, 1997), and education (Pascarella and Terenzini, 1991; Winter *et al.*, 1981) have shown that people can change their behavior, moods, and self-image. But most of the studies focused on a single characteristic, like maintenance of sobriety, reduction in a specific anxiety, or a set of characteristics often determined by the assessment instrument, such as the scales of the Minnesota Multiphasic Personality Inventory (MMPI). For example, the impact of Achievement Motivation Training was a dramatic increase in small business success, with people creating more

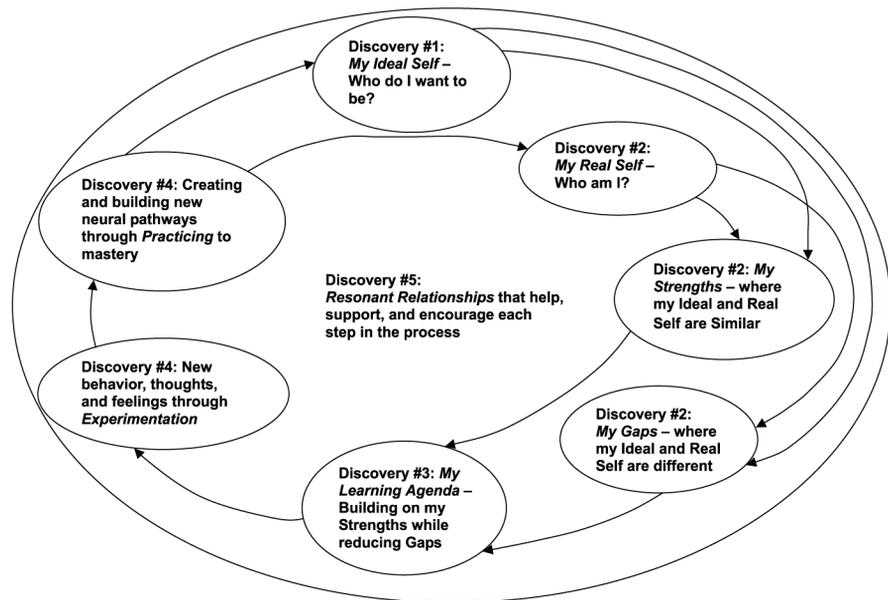


Figure 1.
Boyatzis's theory of
self-directed learning

new jobs, starting more new businesses, and paying more taxes than comparison groups (McClelland and Winter, 1969; Miron and McClelland, 1979). The impact of power motivation training was improved maintenance of sobriety (Cutter *et al.*, 1977). But there are few models or theories of how individuals change and develop in sustainable ways (Prochaska *et al.*, 1992; McClelland, 1965).

The “honeymoon effect” of typical training programs might start with improvement immediately following the program, but within months it drops precipitously (Campbell *et al.*, 1970). Only 15 programs were found in a global search of the literature by the Consortium on Research on Emotional Intelligence in Organizations to improve emotional intelligence. Most of them showed impact on job outcomes, such as number of new businesses started, or life outcomes, such as finding a job or satisfaction (Cherniss and Adler, 2000), which are the ultimate purpose of development efforts. But showing an impact on outcomes, while desired, may also blur *how* the change actually occurs. Furthermore, when a change has been noted, a question about the sustainability of the changes is raised because of the relatively short time periods studied.

The few published studies examining improvement of more than one of these competencies show an overall improvement of about 11 per cent in emotional intelligence abilities three to 18 months following training (Noe and Schmitt, 1986; Hand *et al.*, 1973; Wexley and Memeroff, 1975; Latham and Saari, 1979; Young and Dixon, 1996). More recent meta-analytic studies and utility analyses confirm that significant changes can and do occur. But they do not have the impact that the level of investment would lead us to expect, nor with many types of training (Morrow *et al.*, 1997; Baldwin and Ford, 1988; Burke and Day, 1986). There are, undoubtedly, other studies which were not found and reviewed, or not available through journals and books and therefore overlooked. This is not an exhaustive review, but suggestive of the percentage improvement as a rough approximation of the real impact. This approximation is offered to help in the comparison of relative impact of management training, management education, and self-directed learning and change.

The results appear no better from standard MBA programs, where there is no attempt to enhance emotional intelligence abilities. The best data here come from a research project by the American Assembly of Collegiate Schools of Business. They found that the behavior of graduating students from two highly-ranked business schools, compared to their levels when they began their MBA training, showed only improvements of 2 percent in the skills of emotional intelligence (Development Dimensions International, 1985). In fact, when students from four other high-ranking MBA programs were assessed on a range of tests and direct behavioral measures, they showed a gain of 4 percent in self-awareness and self-management abilities, but a *decrease* of 3 percent in social awareness and relationship management (Boyatzis and Sokol, 1982; Boyatzis *et al.*, 1995a).

The honeymoon effect is often the cause for practitioners and scholars overlooking the “sleeper effect”. The sleeper effect is that a sustainable change in a person’s behavior, thoughts patterns or emotional reactions to events does not appear until six to 12 months following completion of the change effort (McClelland, 1970). Since it appears disconnected to the timing of the intervention, it is a discontinuous effect and easily overlooked or wrongly attributed to other factors. Here again, the use of concepts from complexity theory help us notice effects that were overlooked.

A series of longitudinal studies underway at the Weatherhead School of Management of Case Western Reserve University have shown that people can change on this complex set of competencies that we call emotional intelligence that distinguish outstanding performers in management and professions – and the course that provoked the changes was designed with a specific theory of how adults change. And the improvement lasted for years. A visual comparison of the percentage improvement in behavioral measures of emotional intelligence from different samples is shown in Figure 2.

MBA students, averaging 27 years old at entry into the program, showed dramatic changes on videotaped and audiotaped behavioral samples and questionnaire measures of these competencies as a result of the competency-based, outcome-oriented MBA program implemented in 1990 (Boyatzis *et al.*, 1995b, 1996, 2002).

Four cadres of full-time MBA students graduating in 1992, 1993, 1994, and 1995 showed 47 percent improvement on self-awareness competencies like self-confidence and on self-management competencies such as the drive to achieve and adaptability in the one to two years to graduation compared to when they first entered. When it came to social awareness and relationship management skills, improvements were even greater: 75 percent on competencies such as empathy and team leadership.

Meanwhile with the part-time MBA students graduating in 1994, 1995, and 1996, the dramatic improvement was found again, in these students who typically take three to five years to graduate. These groups showed 67 percent improvement in self-awareness and self-management competencies and 40 percent improvement in social awareness and social skills competencies by the end of their MBA program.

That’s not all. Jane Wheeler tracked down groups of these part-timers two years *after* they had graduated. Even after all that time, they still showed improvements in the same range: 63 percent on the self-awareness and self-management competencies, and 45 percent on the social awareness and relationship management competencies. This is in contrast to MBA graduates of the WSOM of the 1988 and 1989 traditional full-time and part-time program who showed improvement in substantially fewer of the competencies.

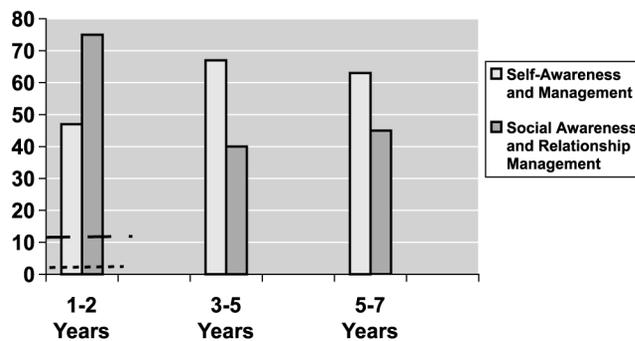


Figure 2.
Percentage improvement of emotional intelligence competencies of different groups of MBA graduates taking the intentional change course

Note: — — Indicates impact of company and government training programs 3-18 months after training on multiple emotional intelligence competencies. - - - - - Indicates impact of a variety of above average MBA programs

The positive effects of this program were not limited to MBAs. In a longitudinal study of four classes completing the Professional Fellows Program (i.e. an executive education program at the Weatherhead School of Management), Ballou *et al.* (1999) showed that these 45-55 year old professionals and executives improved on self-confidence, leadership, helping, goal setting, and action skills. These were 67 percent of the emotional intelligence competencies assessed in this study.

The intervention, or course in this case, on which these dramatic results were based was designed with intentional change theory. This describes the process as designed into a required course and the elements of the MBA and executive programs implemented in 1990 at the Weatherhead School of Management. Experimentation and research into the various components have resulted in refinement of these components and the theory as discussed in this paper and in this special issue of this journal. For a detailed description of the course, read Boyatzis (1994, 1995). For now, let us return to the discoveries that constitute ICT.

The five discoveries of intentional change theory

This brings us to the next feature of ICT as a complex system. The change process actually involves a sequence of discontinuities, called discoveries, which function as an iterative cycle in producing the sustainable change at the individual level. These are:

- (1) the ideal self and a personal vision;
- (2) the real self and its comparison to the ideal self resulting in an assessment of one's strengths and weaknesses, in a sense a personal balance sheet;
- (3) a learning agenda and plan;
- (4) experimentation and practice with the new behavior, thoughts, feelings, or perceptions; and
- (5) trusting, or resonant relationships that enable a person to experience and process each discovery in the process.

The first discovery: catching your dreams, engaging your passion

The first discontinuity and potential starting point for the process of intentional change is the discovery of who you want to be. Our ideal self is an image of the person we want to be. It appears to have three major components that drive the development of this image of the ideal self:

- (1) an image of a desired future;
- (2) hope that one can attain it; and
- (3) aspects of one's core identity, which includes enduring strengths, on which builds for this desired future.

This is explained in detail in the paper in this issue by Boyatzis and Akrivou (2006). It emerges from our ego ideal, dreams, and aspirations. The last 20 years have revealed literature supporting the power of positive imaging or visioning in sports psychology, meditation and biofeedback research, and other psycho-physiological research. It is believed that the potency of focusing one's thoughts on the desired end state of condition is driven by the emotional components of the brain (Goleman, 1995).

This research indicates that we can access and engage deep emotional commitment and psychic energy if we engage our passions and conceptually catch our dreams in

our ideal self image. It is an anomaly that we know the importance of consideration of the ideal self, and yet often, when engaged in a change or learning process we skip over the clear formulation or articulation of our ideal self image. If a parent, spouse, boss, or teacher, tells us something that should be different, they are telling us about the person *they* want us to be. As adults, we often allow ourselves to be anesthetized to our dreams and lose sight of our deeply felt ideal self.

It is also clear from this framework that “strengths-based” approaches to development will probably work better than current methods but will fall short of what the person can achieve (Roberts *et al.*, n.d.). In focusing on the person’s established strengths, such approaches develop the core identity component of the ideal self as a driver of change, but fail to capture the energy inherent in dreams of the future and new possibilities as well as the emotional driver of hope. Because they are based on what the person has done in the past, they do not adequately engage a person’s dreams of the future or consideration of possibilities.

*The second discovery: am I a boiling frog?*²

The awareness of the current self, the person that others see and with whom they interact, is elusive. For normal reasons, the human psyche protects itself from the automatic “intake” and conscious realization of all information about ourself. These ego-defense mechanisms serve to protect us. They also conspire to delude us into an image of who we are that feeds on itself, becomes self-perpetuating, and eventually may become dysfunctional (Goleman, 1985). The forces of self-awareness that enable the real self to be explored are discussed and explained in more detail in the paper in this issue by Taylor (2006).

The greatest challenge to an accurate current self-image (i.e. seeing yourself as others see you and consistent with other internal states, beliefs, emotions, and so forth) is the boiling frog syndrome. It is said that dropping a frog into a pot of boiling water will result in it immediately jumping out. But place a frog in a pot of cool water, and gradually raise the temperature to boiling, and the frog will remain in the water until it is cooked.

Several factors contribute to us becoming boiling frogs. First, people around you may not let you see a change. They may not give you feedback or information about how they see it. Also, they may be victims of the boiling frog syndrome themselves, as they adjust their perception on a daily basis. Second, enablers, those forgiving the change, frightened of it, or who do not care, may allow it to pass unnoticed.

For a person to truly consider changing a part of himself or herself, you must have a sense of what you value and want to keep. These areas in which your real self and ideal self are consistent or congruent can be considered strengths. Likewise, to consider what you want to preserve about yourself involves admitting aspects of yourself that you wish to change or adapt in some manner. Areas where your real self and ideal self are not consistent can be considered gaps, or weaknesses.

All too often, people explore growth or development by focusing on the “gaps” or deficiencies. Organizational training programs and managers conducting annual reviews often make the same mistake. There is an assumption that we can “leave well enough alone” and get to the areas that need work. It is no wonder that many of these programs or procedures intended to help a person develop result in the individual

feeling battered, beleaguered and bruised, not helped, encouraged, motivated, or guided.

The third discovery: mindfulness through a learning agenda

The third discontinuity in intentional change is development of an agenda and focusing on the desired future. While performance at work or happiness in life may be the eventual consequence of our efforts, a learning agenda focuses on development. A learning orientation arouses a positive belief in one's capability and the hope of improvement. This results in people setting personal standards of performance, rather than "normative" standards that merely mimic what others have done (Beaubien and Payne, 1999). Meanwhile, a performance orientation evokes anxiety and doubts about whether or not we can change (Chen *et al.*, 2000).

As part of one of the longitudinal studies at the Weatherhead School of Management, Leonard (1996) showed that MBAs who set goals desiring to change on certain competencies changed significantly on those competencies as compared to other MBAs. Previous goal-setting literature had shown how goals affected certain changes on specific competencies (Locke and Latham, 1990), but had not established evidence of behavioral change on a comprehensive set of competencies that constitute emotional intelligence.

Self-organizing and the pull of two attractors

Intentional change produces sustainable, desirable changes as an iterative, cyclical process. As a complex system it engages the cycle again through the self-organizing properties of the human organism. Two attractors, the positive emotional and negative emotional attractors, determine the context of the self-organizing process and whether it is an adaptation to existing conditions or adaptation to new, emergent conditions. A self-organizing system is inherently homeostatic with the possibility of some form of deterioration if it is not perfectly efficient (which human organisms do not appear to be). Just like the properties in a closed system moving toward maximum entropy over time, as predicted from the Second Law of Thermodynamics, dissonance occurs in the human and our social organizations unless there is intentional investment. Another way to say this is that adaptations and adjustments based on Argyris's (1985) concept of single loop learning will result in a self-sustaining system of a person, their life and performance. But over time, even with these properties of self-organization, deterioration will occur.

This is because the human organism is not a fully closed system. Among other things, we need social interaction to allow our "open loop" emotional system to function (Goleman *et al.*, 2002). Even more dramatic in its destabilizing effect is the advent of one's life and career cycles. Whether these are the traditional seven-year "itch" cycles or those of varying periodicity described by Erikson (1988), Sheehy (1995), or Levinson (1974), a person occasionally looks for a change. These are moments of invitation for what Argyris (1985) called "double loop learning". This helps to explain why double loop learning is so difficult and so relatively infrequent. It is inherently destabilizing and must fight against the self-organizing property inherent in a person.

Intentional change theory offers an explanation as to how the disequilibrium occurs and then the force that drives a new self-organizing system. An attractor becomes the destabilizing force. We call this the positive emotional attractor. It pulls the person

toward their ideal self. In the process of focusing the person on future possibilities and filling them with hope, it arouses the parasympathetic nervous system (PSNS) (Boyatzis, Smith and Blaize, n.d.). Once the PSNS is aroused, the person has access to more of their neural circuits, and finds themselves in a calmer, if not elated state in which their immune system is functioning well and their body is sustained. They are able, in this state, to experience neurogenesis (i.e. the conversion of hippocampal stem cells into new neurons) and the new degrees and extent of learning that becomes possible. It is even suggested that formation of learning goals or learning-oriented goals builds from this attractor and results in more successful change. The papers by Dyck *et al.* (2006) and Howard (2006) in this issue explain this dynamic more.

But another attractor is also at play in the system – the negative emotional attractor (NEA). In an analogous manner, it aroused the sympathetic nervous system (SNS), which helps the human to deal with stress and threat and protect itself. Within the threatened environment and state, the NEA pulls a person toward defensive protection. In this arousal, the body shunts blood to the large muscle groups, closes down non-essential neural circuits, suspends the immune system, and produces cortisol – important for protection under threat (Sapolsky, 2004). But cortisol inhibits or even stops neurogenesis and overexcites older neurons, rendering them useless (Boyatzis, Smith and Blaize, n.d.).

If a person's adaptation is self-organizing, then desired change not already part of this system is only possible when it is intentional. We would add because of the difficulty in sustaining the effort, it also must be driven by a powerful force. This is where the ideal self activates the energy of the PEA and the two attractors become “a limit cycle” for the person (Casti, 1994). This also helps us to understand why there is both a need for more positivity than negativity in change efforts, but there are upper limits to the effectiveness of positivity as well (Losada and Heaphy, n.d.).

The process of desired, sustainable change requires behavioral freedom and permission to try something new and see what happens. This “permission” comes from interaction with others, as we will see in the fourth and fifth discoveries in the process.

The fourth discovery: metamorphosis

The fourth discovery is to experiment and practice desired changes. Acting on the plan and toward the goals involves numerous activities. These are often made in the context of experimenting with new behavior. Typically following a period of experimentation, the person practises the new behaviors in actual settings within which they wish to use them, such as at work or at home. During this part of the process, intentional change looks like a “continuous improvement” process.

To develop or learn new behavior, the person must find ways to learn more from current, or ongoing, experiences. That is, the experimentation and practice does not always require attending “courses” or a new activity. It may involve trying something different in a current setting, reflecting on what occurs, and experimenting further in this setting. Sometimes, this part of the process requires finding and using opportunities to learn and change. People may not even think they have changed until they have tried new behavior in a work or “real world” setting.

Dreyfus (1990) studied managers of scientists and engineers who were considered superior performers. Once she documented that they used considerably more of certain abilities than their less effective counterparts, she pursued how they developed some of

those abilities. One of the distinguishing abilities was group management, also called team building. She found that many of these middle-aged managers had first experimented with team-building skills in high school and college, in sports, clubs, and living groups. Later, when they became “bench scientists and engineers” working on problems in relative isolation, they still pursued the use and practice of this ability in activities outside of work. They practised team building and group management in social and community organizations, such as 4-H Clubs, and professional associations in planning conferences and so forth.

The experimentation and practice are most effective when they occur in conditions in which the person feels safe (Kolb and Boyatzis, 1970b). This sense of psychological safety creates an atmosphere in which the person can try new behavior, perceptions, and thoughts with relatively less risk of shame, embarrassment, or serious consequences of failure.

The fifth discontinuity: relationships that enable us to learn

Our relationships are an essential part of our environment. The most crucial relationships are often a part of groups that have particular importance to us. These relationships and groups give us a sense of identity, guide us as to what is appropriate and “good” behavior, and provide feedback on our behavior. In sociology, they are called reference groups. These relationships create a “context” within which we interpret our progress on desired changes, the utility of new learning, and even contribute significant input to formulation of the Ideal (Kram, 1996).

In this sense, our relationships are mediators, moderators, interpreters, sources of feedback, sources of support and permission of change and learning. They may also be the most important source of protection from relapses or returning to our earlier forms of behavior. Wheeler (1999) analyzed the extent to which the MBA graduates worked on their goals in multiple “life spheres” (i.e. work, family, recreational groups, etc.). In a two-year follow-up study of two of the graduating classes of part-time MBA students, she found that those who worked on their goals and plans in multiple sets of relationships improved the most and more than those working on goals in only one setting, such as work or within one relationship.

In a study of the impact of the year-long executive development program for doctors, lawyers, professors, engineers, and other professionals mentioned earlier, Ballou *et al.* (1999) found that participants gained self-confidence during the program. Even at the beginning of the program, others would say these participants were very high in self-confidence. It was a curious finding. The best explanation came from follow-up questions to the graduates of the program. They explained the evident increase in self-confidence as an increase in the confidence to change. Their existing reference groups (i.e. family, groups at work, professional groups, community groups) all had an investment in them staying the same, meanwhile the person wanted to change. The Professional Fellows Program allowed them to develop a new reference group that encouraged change.

Based on social identity, reference group, and now relational theories, our relationships both mediate and moderate our sense of who we are and who we want to be. We develop or elaborate our ideal self from these contexts. We label and interpret our real self from these contexts. We interpret and value strengths (i.e. aspects considered our core that we wish to preserve) from these contexts. We interpret and

value gaps (i.e. aspects considered weaknesses or things we wish to change) from these contexts.

Fractals and interaction among the levels

Now we come to the aspect of ICT that makes it a truly complex system – its “multileveledness”. According to the theory, sustainable change occurs at any level of human and social organization through the same ICT. In this sense, these other levels are fractals of ICT at the individual level. In other words, desired, sustainable change within a family, team or small group occurs through the cyclical iteration of the group through what can be called the “group level definition” of the five discoveries. In this case, the ideal self becomes a shared vision of the future of the group. What does the group want to be, what can they be in the future? Similarly, desired, sustainable organizational change occurs through ICT’s five discoveries at the organizational level. And so on at the community, country, and global level. If science fiction writers are to be believed, desired sustainable change at the cosmic level will also follow ICT (see Issac Azimov’s Foundation series for exploration of ICT at the cosmic level).

These other levels are, listed in order of increasing social size:

- (1) individual;
- (2) dyad or couple;
- (3) team, group, family, coalition;
- (4) organization;
- (5) community;
- (6) country/culture;
- (7) global; and
- (8) cosmic.

Akrivou *et al.* (2006) examine ICT at the group or team level. Van Oosten (2006) examines ICT at the organization level. Smith (2006) examines ICT at the level of formation and development of social capital. Howard and Coombe (2006) examine ICT at the country or culture level (all in this issue).

But a primary feature of a complex system is that there is an interaction among the levels and that interaction produces adaptive or emergent behavior. The first degree of interaction between and among the individual, small group, and organization levels of ICT is leadership. The second degree of interaction, which in addition to leadership, allows interaction among all levels of ICT, is through the formation and use of reference groups.

As can be seen in the articles in this Special Issue, without leadership there does not seem to be the emergence of desired, sustainable change. Many of the organizational or small group conditions may have been present for a long time, but when a capable or effective leader appears, magic happens – or more accurately, ICT happens! Similarly, a leader may enable individuals to find to consider intentional change while a small group (or team or family) or their organizational undergoes intentional change.

But once the social organization gets larger than the number of people who can comfortably sit around a table, campfire, or circle, coalitions begin to play a critical role. The specific coalitions are those formed around a theme. This theme is often

defined in terms of values (what is good or bad) and becomes an identity forming group. Literature since the 1980s has departed from calling these “reference groups” and now uses terms such as “social identity groups”, or “groups representing anticipatory socialization”. In much the same way a coalition government brings together ministers elected to represent a variety of political parties (each representing a different issue) to join together and form a government and elect a Prime Minister, reference groups enable large social organizations to engage in the discoveries of ICT. It is then up to the leadership (again the first degree of interaction appears critical) to synthesize these into the needed experience for most of the people in the social group at that level.

Concluding thought

People change. People change in desired ways but not without intentional efforts. Teams, organizations, communities, and even countries can change in desired ways. But again, without intentional efforts, the changes are slow, result in worse unintentional consequences to the original desire, and arouse a shared hopelessness about the future and diminish the human spirit.

Through intentional change theory, we can understand how individuals, groups, organizations, and whole communities can bring about desired changes in a sustainable way. But to understand intentional change, we must use a variety of concepts from complexity theory. It is through these at times elusive but enlightening concepts that we can guide and reignite individual and collective will to make the world a better place.

References

- Akrivou, K., Boyatzis, R.E. and McLeod, P.L. (2006), “The evolving group: towards a prescriptive theory of intentional group development”, *Journal of Management Development*, Vol. 25 No. 7, pp. 689-706.
- Argyris, C. (1985), *Strategy, Change, and Defensive Routines*, Pitman, Boston, MA.
- Ballou, R., Bowers, D., Boyatzis, R.E. and Kolb, D.A. (1999), “Fellowship in lifelong learning: an executive development program for advanced professionals”, *Journal of Management Education*, Vol. 23 No. 4, pp. 338-54.
- Baldwin, T. and Ford, J.K. (1988), “Transfer of training: a review and directions for future research”, *Personnel Psychology*, Vol. 41, pp. 63-105.
- Barlow, D.H. (1988), *Anxiety and Disorders: The Nature and Treatment of Anxiety and Panic*, The Guilford Press, New York, NY.
- Beaubien, J.M. and Payne, S.C. (1999), “Individual goal orientation as a predictor of job and academic performance: a meta-analytic review and integration”, paper presented at the Meeting of the Society for Industrial and Organizational Psychology, Atlanta, GA, April.
- Boyatzis, R.E. (1983), “Who would drink what, when and where if looking for a fight?”, in Gottheil, E., Druley, K.A., Skolada, T.E. and Waxman, H.H. (Eds), *Alcohol, Drug Abuse, and Aggression*, Charles C. Thomas, Springfield, IL, (this was based on a presentation at the 1979 American Psychological Association Annual Conference in Detroit, MI).
- Boyatzis, R.E. (1994), “Stimulating self-directed change: a required MBA course called ‘Managerial Assessment and Development’”, *Journal of Management Education*, Vol. 18 No. 3, pp. 304-23.

- Boyatzis, R.E. (1995), "Cornerstones of change: building a path for self-directed learning", in Boyatzis, R.E., Cowen, S.C. and Kolb, D.A. (Eds), *Innovation in Professional Education: Steps on a Journey from Teaching to Learning*, Jossey-Bass, San Francisco, CA, pp. 50-94.
- Boyatzis, R.E. (1999), "Self-directed change and learning as a necessary meta-competency for success and effectiveness in the 21st century", in Sims, R. and Veres, J.G. (Eds), *Keys to Employee Success in the Coming Decades*, Greenwood Publishing, Westport, CT, pp. 15-32.
- Boyatzis, R.E. (2001), "How and why individuals are able to develop emotional intelligence", in Cherniss, C. and Goleman, D. (Eds), *The Emotionally Intelligent Workplace: How to Select for, Measure, and Improve Emotional Intelligence in Individuals, Groups, and Organizations*, Jossey-Bass, San Francisco, CA, pp. 234-53.
- Boyatzis, R.E. (n.d.), "Using tipping points of emotional intelligence and cognitive competencies to predict financial performance of leaders", *Psicothemia*, Vol. 17, forthcoming.
- Boyatzis, R.E. and Akrivou, K. (2006), "The ideal self as the driver of intentional change", *Journal of Management Development*, Vol. 25 No. 7, pp. 624-42.
- Boyatzis, R.E. and Kolb, D.A. (1969), "Feedback and self-directed behavior change", unpublished working paper No. 394-69, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.
- Boyatzis, R.E. and McKee, A. (2005), *Resonant Leadership: Renewing Yourself and Connecting with Others Through Mindfulness, Hope, and Compassion*, Harvard Business School Press, Boston, MA.
- Boyatzis, R.E. and Sokol, M. (1982), "A pilot project to assess the feasibility of assessing skills and personal characteristics of students in collegiate business programs", report to the AACSB, St Louis, MO.
- Boyatzis, R.E., Renio-McKee, A. and Thompson, L. (1995a), "Past accomplishments: establishing the impact and baseline of earlier programs", in Boyatzis, R.E., Cowen, S.S. and Kolb, D.A. (Eds), *Innovation in Professional Education: Steps on a Journey from Teaching to Learning*, Jossey-Bass, San Francisco, CA, pp. 95-119.
- Boyatzis, R.E., Leonard, D., Rhee, K. and Wheeler, J.V. (1996), "Competencies can be developed, but not the way we thought", *Capability*, Vol. 2 No. 2, pp. 25-41.
- Boyatzis, R.E., Baker, A., Leonard, D., Rhee, K. and Thompson, L. (1995b), "Will it make a difference?: assessing a value-based, outcome oriented, competency-based professional program", in Boyatzis, R.E., Cowen, S.S. and Kolb, D.A. (Eds), *Innovating in Professional Education: Steps on a Journey from Teaching to Learning*, Jossey-Bass, San Francisco, CA, pp. 167-202.
- Burke, M.J. and Day, R.R. (1986), "A cumulative study of the effectiveness of managerial training", *Journal of Applied Psychology*, Vol. 71 No. 2, pp. 232-45.
- Campbell, J.P., Dunnette, M.D., Lawler, E.E. III and Weick, K.E. (1970), *Managerial Behavior, Performance, and Effectiveness*, McGraw-Hill, New York, NY.
- Casti, J.L. (1994), *Complexification: Explaining a Paradoxical World Through the Science of Surprise*, Harper Collins, New York, NY.
- Chen, G., Gully, S.M., Whiteman, J.A. and Kilcullen, R.N. (2000), "Examination of relationships among trait-like individual differences, state-like individual differences, and learning performance", *Journal of Applied Psychology*, Vol. 85 No. 6, pp. 835-47.
- Cherniss, C. and Adler, M. (2000), *Promoting Emotional Intelligence in Organizations: Make Training in Emotional Intelligence Effective*, American Society of Training and Development, Washington, DC.

-
- Complexity Forum (2001-2003), Faculty seminar at Case Western Reserve University, Cleveland, OH, chaired by Professor Mihajlo D. Mesarovic, with Professors James Alexander, David Aron, Eric Baer, Robert Barmish, Randolph Beer, Richard Boyatzis, Bo Carlsson, Meil Greenspan, Max Hutton, Eva Kahana, Joseph Koonce, Kenneth Loparo, Vincent McHale, Shiva Satry, Kenneth Singer, Daniel Solow, Sree Sreenath, Kurt Strange, Masood Tabib-Asar, Phillip Taylor, and Donal Voltz.
- Cutter, H., Boyatzis, R.E. and Clancy, D. (1977), "The effectiveness of power motivation training for rehabilitating alcoholics", *Journal of Studies on Alcohol*, Vol. 38 No. 1, pp. 131-41.
- Development Dimensions International (1985), "Final report: Phase III", report to the AACSB, St Louis, MO.
- Dreyfus, C. (1990), "The characteristics of high performing managers of scientists and engineers", unpublished doctoral dissertation, Case Western Reserve University, Cleveland, OH.
- Dyck, L.R., Caron, A. and Aron, D. (2006), "Working on the positive emotional attractor through training in health care", *Journal of Management Development*, Vol. 25 No. 7, pp. 671-88.
- Gladwell, M. (2000), *The Tipping Point: How Little Things Can Make a Big Difference*, Little Brown and Company, New York, NY.
- Goleman, D. (1985), *Vital Lies, Simple Truths: The Psychology of Self-Deception*, Simon and Schuster, New York, NY.
- Goleman, D. (1995), *Emotional Intelligence*, Bantam Books, New York, NY.
- Goleman, D., Boyatzis, R.E. and McKee, A. (2002), *Primal Leadership: Realizing the Power of Emotional Intelligence*, Harvard Business School Press, Boston, MA.
- Hand, H.H., Richards, M.D. and Slocum, J.W. Jr (1973), "Organizational climate and the effectiveness of a human relations training program", *Academy of Management Journal*, Vol. 16 No. 2, pp. 185-246.
- Holland, J. (1995), *Hidden Order: How Adaptation Builds Complexity*, Helix Books, Reading, MA.
- Howard, A. (2006), "Positive and negative emotional attractors and intentional change", *Journal of Management Development*, Vol. 25 No. 7, pp. 732-42.
- Howard, A. and Coombe, D. (2006), "National level intentional change: a story of two countries", *Journal of Management Development*, Vol. 25 No. 7, pp. 732-42.
- Hubble, M.A., Duncan, B.L. and Miller, S.D. (Eds) (1999), *The Heart and Soul of Change: What Works in Therapy*, American Psychological Association, Washington, DC.
- Kanfer, F.H. and Goldstein, A.P. (Eds) (1991), *Helping People Change: A Textbook of Methods*, 4th ed., Allyn & Bacon, Boston, MA.
- Kolb, D.A. (1971), "A cybernetic model of human change and growth", unpublished working paper No. 526-71, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, MA.
- Kolb, D.A. and Boyatzis, R.E. (1970a), "On the dynamics of the helping relationship", *Journal of Applied Behavioral Science*, Vol. 6 No. 3, pp. 267-89.
- Kolb, D.A. and Boyatzis, R.E. (1970b), "Goal-setting and self-directed behavior change", *Human Relations*, Vol. 23 No. 5, pp. 439-57.
- Kolb, D.A., Winter, S.K. and Berlew, D.E. (1968), "Self-directed change: two studies", *Journal of Applied Behavioral Science*, Vol. 6 No. 3, pp. 453-71.
- Kram, K.E. (1996), "A relational approach to careers", in Hall, D.T. (Ed.), *The Career is Dead: Long Live the Career*, Jossey-Bass, San Francisco, CA, pp. 132-57.

- Latham, G.P. and Saari, L.M. (1979), "Application of social-learning theory to training supervisors through behavioral modeling", *Journal of Applied Psychology*, Vol. 64 No. 3, pp. 239-46.
- Leonard, D. (1996), "The impact of learning goals on self-directed change in management development and education", doctoral dissertation, Case Western Reserve University, Cleveland, OH.
- Locke, E.A. and Latham, G.P. (1990), *A Theory of Goal Setting and Task Performance*, Prentice-Hall, Englewood Cliffs, NJ.
- Losada, M. and Heaphy, E. (n.d.), "The role of positivity and connectivity in the performance of business teams: a nonlinear dynamics model", *American Behavioral Scientist*, forthcoming.
- McClelland, D.C. (1965), "Toward a theory of motive acquisition", *American Psychologist*, Vol. 20 No. 5, pp. 321-33.
- McClelland, D.C. and Winter, D.G. (1969), *Motivating Economic Achievement*, The Free Press, New York, NY.
- Miron, D. and McClelland, D.C. (1979), "The impact of achievement motivation training on small business", *California Management Review*, Vol. 21 No. 4, pp. 13-28.
- Morrow, C.C., Jarrett, M.Q. and Rupinski, M.T. (1997), "An investigation of the effect and economic utility of corporate-wide training", *Personnel Psychology*, Vol. 50, pp. 91-119.
- Noe, R.A. and Schmitt, N. (1986), "The influence of trainee attitudes on training effectiveness: test of a model", *Personnel Psychology*, Vol. 39, pp. 497-523.
- Pascarella, E.T. and Terenzini, P.T. (1991), *How College Affects Students: Findings and Insights from Twenty Years of Research*, Jossey-Bass, San Francisco, CA.
- Prochaska, J.O., DiClemente, C.C. and Norcross, J.C. (1992), "In search of how people change: applications to addictive behaviors", *American Psychologist*, Vol. 47 No. 9, pp. 1102-14.
- Roberts, L., Dutton, J.E., Spreitzer, G., Heaphy, E. and Quinn, R.E. (n.d.), "Composing the reflect best-self portrait: pathways for becoming extraordinary in work organizations", *Academy of Management Review*, forthcoming.
- Smith, M.L. (2006), "Social capital and intentional change: exploring the role of social networks on individual change efforts", *Journal of Management Development*, Vol. 25 No. 7, pp. 718-31.
- Specht, L. and Sandlin, P. (1991), "The differential effects of experiential learning activities and traditional lecture classes in accounting", *Simulations and Gaming*, Vol. 22 No. 2, pp. 196-210.
- Taylor, S.N. (2006), "Why the real self is fundamental to intentional change", *Journal of Management Development*, Vol. 25 No. 7, pp. 643-56.
- Van Oosten, E. (2006), "Intentional change theory at the organisational level: a case study", *Journal of Management Development*, Vol. 25 No. 7, pp. 707-17.
- Wexley, K.N. and Memeroff, W.F. (1975), "Effectiveness of positive reinforcement and goal setting as methods of management development", *Journal of Applied Psychology*, Vol. 60 No. 4, pp. 446-50.
- Wheeler, J.V. (1999), "The impact of social environments on self-directed change and learning", unpublished doctoral dissertation, Case Western Reserve University, Cleveland, OH.
- Winter, D.G., McClelland, D.C. and Stewart, A.J. (1981), *A New Case for the Liberal Arts: Assessing Institutional Goals and Student Development*, Jossey-Bass, San Francisco, CA.

Young, D.P. and Dixon, N.M. (1996), *Helping Leaders Take Effective Action: A Program Evaluation*, Center for Creative Leadership, Greensboro, NC.

Further reading

- Boyatzis, R.E. (1982), *The Competent Manager: A Model for Effective Performance*, Wiley, New York, NY.
- Bray, D.W., Campbell, R.J. and Grant, D.L. (1974), *Formative Years in Business: A Long-term AT&T study of Managerial Lives*, Wiley, New York, NY.
- Goleman, D. (1998), *Working With Emotional Intelligence*, Bantam Books, New York, NY.
- Howard, A. and Bray, D. (1988), *Managerial Lives in Transition: Advancing Age and Changing Times*, Guilford Press, New York, NY.
- Kolb, D.A. (1984), *Experiential Learning: Experience as the Source of Learning and Development*, Prentice-Hall, Englewood Cliffs, NJ.
- Kotter, J.P. (1982), *The General Managers*, The Free Press, New York, NY.
- Luthans, F., Hodgetts, R.M. and Rosenkrantz, S.A. (1988), *Real Managers*, Ballinger, Boston, MA.
- Sinatra, G.M. and Pintrich, P.R. (2003), "The role of intentions in conceptual change learning", in Sinatra, G.M. and Pintrich, P.R. (Eds), *Intentional Conceptual Change*, Lawrence Erlbaum Associates, Mahwah, NJ, pp. 1-18.
- Spencer, L.M. Jr and Spencer, S.M. (1993), *Competence at Work: Models for Superior Performance*, Wiley, New York, NY.
- Thornton, G.C. III and Byham, W.C. (1982), *Assessment Centers and Managerial Performance*, Academic Press, New York, NY.