

The History and Current Status of Organizational- and Systems-change Theory

H. Skipton Leonard

12.1 Historical Foundations

The matter of the impact and process of change has been on the minds of humans from the dawn of civilization. It is thought that the origins of the I Ching, the classic Book of Changes of the ancient Chinese civilization, used by fortune tellers and oracles, can be found as early as 1150 BC¹ (Blofeld, 1968) and used by fortune tellers and oracles. The philosophical treatment of change using the I Ching is generally attributed to Confucius and his followers and disciples, beginning around 500 BC (Wilhelm, 1960). The I Ching/Confucian philosophical position on change is that it is constant: “Change: that is the unchangeable” (Wilhelm, 1960, p. 23). In the I Ching/Confucian view, change and stability are of one; they are “neither kernel nor husk—heart and mind function together undivided” (Wilhelm, 1960, p. 13). This understanding is expressed in the three definitions of “I” in the I Ching: the “easy, the changing, and the constant” (Wilhelm, 1960, p. 15).

At about the same period in the Mediterranean, Heraclitus of Ephesus made parallel statements about the nature of change and stasis, holding that “life was movement that developed through the conflict of opposites” (Wilhelm, 1960, p. 13). In Heraclitus’ view, nothing is permanent except change.²

Despite the apparent similarities between the Chinese and Greek cultural viewpoints, there are important and characteristic differences. The I Ching/Confucian approach sees a complementarity and harmony between change and stability (Wilhelm, 1960). There is a unity to the two principles; in effect, they are two sides of the same coin. For Heraclitus, in contrast, a higher order of lawfulness, the logos, promotes and shapes change (Wilhelm, 1960), creating coherency out of chaos. The unity and contrast between permanence, ubiquity, and stasis appear repeatedly in the various approaches to understanding change that will be reviewed in this chapter. Each theorist

The Wiley-Blackwell Handbook of the Psychology of Leadership, Change and Organizational Development, First Edition. Edited by H. Skipton Leonard, Rachel Lewis, Arthur M. Freedman and Jonathan Passmore. © 2013 John Wiley & Sons, Ltd. Published 2013 by John Wiley & Sons, Ltd.

and practitioner must incorporate, integrate, and grapple with these eternal truths in their models of change or change management.

12.2 Distinctions, Debates, and Controversies

A number of ongoing distinctions, debates, and controversies are apparent in the literature regarding organizational change. They often take the form of polar positions and sometimes of contradictory evidence advanced by researchers and theorists. In some cases, the dialectical debate has resulted in a useful synthesis of antithetical positions. For example, a number of researchers working in the post-World War II era viewed systems as largely inertial that continually trended towards homeostasis and equilibrium (Hannan & Freeman, 1984; Katz & Kahn, 1978). Others, viewing organizational change through the lens of the economically-disruptive 1970s, 80s, and 90s, viewed organizations as existing in an environment of continuous “whitewater,” with decreasing periods of calm and stability (Vaill, 1996). From this debate emerged a synthesis of these positions: punctuated equilibrium (Miller & Friesen, 1984; Tushman & Romanelli, 1985). In this model, organizations may experience extended periods of relative calm and equilibrium in which an evolutionary, convergent approach to change works well. However, the rapid incorporation of technology and advancement of knowledge makes punctuated, divergent, and radical change inevitable and therefore necessary.

This section provides an overview of a number of these issues, which continue to shape and influence the thinking of scholars, researchers, and practitioners.

12.2.1 Whether object or agent of change

Change can be a very different experience depending upon whether you are reacting to it (i.e. are the object of change) or are trying to bring it about (i.e. you are the agent of change). If you are the object of change, it is easy to conclude, like Heraclitus (Wheelwright, 1959), that change is constant, ubiquitous, and inexorable. From this perspective, it is also easy to see why many people in an organization will, at least initially, resist change. If one takes the perspective of a person who is being asked to change, it would make sense to take a much more cautious and evolutionary approach that carefully involves all major stakeholders and end users in the planning and implementation of the change (Cumplings & Worley, 2008; Hedberg et al., 1976; McLean, 2005).

If, however, you are the agent of change, the process may appear more daunting. Most leaders and managers can attest to the difficulty of bringing about significant and necessary change in complex organizations. A number of sources have documented the rather low success rate for organizational-change interventions. For instance, Schaffer & Thompson (1992) reported that 63% of firms using total quality management (TQM) fail to increase quality by even 10%. Likewise, Spector & Beer (1994) found that the overall success rate for TQM is less than 25%. Davenport (1995) reported that 67% of business process reengineering efforts yield mediocre, marginal, or failed results.

The difficulty that agents of change have in bringing about transformational or divergent (from current strategies, practices, policies, etc.) change is explained by Hannan & Freeman (1984) as being the result of the natural inertial and conservative characteristics

of organizations and social systems. Natural selection in the marketplace “favors forms of organizations with high reliability of performance and high levels of accountability” (p. 154). Only large and significant internal or external stressors or crises are capable of overcoming the micro-adaptive and protective instincts that guide the decisions of leaders and managers.

Furthermore, Hannan & Freeman (1984) note that the process of large strategic and structural organizational change makes transformational action unstable. The longer this process takes, the greater the risk of failure. Moreover, the fundamental changes wrought in transformational change mean that, in effect, the organization is being reborn and is subject to all the risks inherent in the start-up of a new organization.

It is no wonder that organizational resistance to inevitably disruptive transformational change primarily resides in the middle-management and individual-contributor levels of the organization that are or will be the objects of the change effort. Senior leadership, in contrast, recognizing and having experienced numerous failed efforts to make transformational change, often discards its normal cautious and conservative leadership approaches to seize the opportunity afforded by crises and threats to propose rapid, large strategic and structural changes in the organization. Rahm Emanuel, President Obama’s Chief of Staff, cited this principle in promoting the ambitious agenda included in the American Recovery and Reinvestment Act of 2009 when he stated, “Never let a serious crisis go to waste. What I mean by that is it’s an opportunity to do things you couldn’t do before” (Emanuel, 2009).

Gersick (1991) proposes a cognitive model that describes the process during periods of crisis/threat-driven change. Following a period of confusion and questioning, leaders and managers synthesize a new vision. Referring to the paradigmatic change discussed by Kuhn (1996), Gersick (1991) notes that in larger systems, “The new direction does not emerge all at once; instead, a catalytic change opens the door to it” (p. 29).

12.2.2 Adaptation versus selection—do organizations really change?

A related debate among change theorists is whether organizations really have the capacity to change (Demers, 2007). The issue is not whether organizations change, because we have ample evidence that they do. It is whether they have the capacity to recognize the need to change, the ability to develop a rational plan to accomplish that change, and the political and implementation skills necessary to make it happen. This capacity has been termed “voluntary change”³ (Demers, 2007). A related issue is whether organizations can accomplish these changes rapidly enough to complete them before another crisis or threat emerges.

The relatively stable economic and political period after World War II and the optimism inspired by the victory over totalitarian forces led most scholars, researchers, and practitioners to assume that change could be brought about through rational and well-planned processes (Bennis et al., 1969; Golembiewski, 1972). During this period, change was equated with expansion, which seemed a normal and natural process (Demers, 2007). This assumption supported the belief that change is gradual, progressive, and emergent (Demers, 2007; Starbuck, 1971).

During this period, one group of theorists espoused the view that organizations could be very purposeful and strategic in initiating change (Child, 1972, 1997; Penrose, 1952; Pfeffer & Salancik, 1978; Oliver, 1991; Sherer & Lee, 2002). They could, proactively, deliberately, and gradually, change themselves to achieve a strategic fit by choosing or influencing their environment (Demers, 2007).

A second group of scholars perceived a more reactive and reflective response—still rational—to crises, threats, and pressures perceived in their economic environment (Burns & Stalker, 1961; Donaldson, 1996; Lawrence & Lorsch, 1969; Thompson, 1967). In this approach, the change initiated would be contingent upon a number of factors (economic environment, technologies involved, size, etc.) (Demers, 2007). The process of change in this view is seen as involving “reactive, deliberate, piecemeal, gradual changes of strategy and/or structure to achieve functional equilibrium in reaction to change in contingencies” (Demers, 2007, p.7).

The dominant change model during this era was Lewin’s notion of planned change through unfreezing, changing, and refreezing (Lewin, 1947b, 1958), combined with variants of general systems theory (GST) (Katz & Kahn, 1978; von Bertalanffy, 1950) and sociotechnical systems (STs) (de Green, 1973; Emery & Trist, 1965). These models remain the core theoretical frameworks for a large majority of organizational-development (OD) practitioners and theorists to this day (see Cummings & Worley, 2008).

These change models also generally assume, following GST, that the normal state for organizational systems is a dynamic equilibrium, with forces for change being balanced by forces resisting a change in performance level. This assumption is the basis for the well-known force-field analysis methodology (Lewin, 1943). Lewin (1947a) made it clear that the equilibrium level for an organizational system wasn’t set but could be moved through effective intervention.⁴ The implication of this model is that incremental change with careful attention to the system factors resisting change is a more effective approach than trying to drive change by pressuring or threatening system stakeholders or constituencies.

The optimism of this period came to a close with the disruptions of the oil embargo in 1973 and the economic downturn and stagnation of the 1970s and early 1980s (Demers, 2007). These events ushered in a pessimistic period, with theorists and practitioners wondering whether organizations had the capacity for appropriate voluntary change that was rapid enough to revitalize themselves and ensure survival. A number of scholars, based upon the experience of this later period, concluded that radical, nonincremental, and divergent changes to current strategy and structure are rare because of the inertia internal to an organization. Schumpeter’s (1942/1975) concept of creative destruction came into vogue once again. Furthermore, they believed that radical and divergent change renders an organization vulnerable to a number of new, unexpected, or poorly-understood factors and increases the probability that the organization will fail to survive (Demers, 2002). Viewing organizations as cautious, conservative systems with a preference for convergent thinking, these authors believed that only the shock of a life-threatening event could overcome their inertia to produce the rapid, frame-shifting changes necessary for survival (Hannon & Freeman, 1984).

In keeping with this model, Hannan & Freeman (1984) described change as “the creation of new organizations and the demise of old ones” (p. 12). Implied by this view is that organizational change follows the Darwinian model of evolution: environmental failure leads to extinction, with a newer, more innovative, generation taking over. Change, therefore, is an intergenerational process in which only new organizations acquire new traits, rather than a Lamarckian system in which new traits can be learned within a generation (Van de Ven & Poole, 1995).

12.2.3 Top-down versus bottom-up change

Change initiated by decisions made by top leadership is commonly thought of as “top-down” (Demers, 2007). In contrast, change that begins with grassroots involvement

and decisions that “bubble up” to top leadership is commonly thought of as “bottom-up” (Demers, 2007). Those who believe that planned change is possible, if not preferable, tend to make decisions about strategic goals and develop an implementation plan that is pushed down through the organization. This decision style has been described as “strategic choice” by Child (1972). In practice, this approach is termed *strategic management*⁵ (Hamel et al., 1999).

While most strategic-management practitioners would, undoubtedly, recommend close consultation and collaboration with key stakeholders and constituents in developing implementation plans and managing the change process (Freeman, 1984), the strategic goals and top-level strategy would nevertheless be developed by top leadership. If for no other reason, this consultation should occur in order to prevent stakeholder groups from organizing through political action to resist the planned change (Demers, 2007; Quinn, 1980).

While there is less literature that systematically discusses bottom-up change (Demers, 2007), the action-research variant of OD provides a methodology for surfacing the views of various stakeholder groups, from top management to end users, to provide implementation plans that benefit from both insights across hierarchies and functional units and a reduction in political action that might impede the eventual implementation process (French & Bell, 1973). The action-research approach is closely linked to Lewin’s (1947b) unfreezing–changing–refreezing model, whereby organizations desiring to bring about change first conduct extensive data-collection and feedback activities with all organizational groups and stakeholders who will be affected by, or have interests in, the changes or goals to be achieved. The change agents then work with the client organization to develop the implementation plan.

Political action, however, is not always seen as a negative factor in organizational change. Kanter (1983), in studying change in 10 large corporations, noted the positive role of politics in successful bottom-up change efforts. In her analysis, large “macrochange” often occurred following the accumulation of many “microchanges” that were promoted by individuals or stakeholder groups. She observed there was a direct correlation between the power allowed by individuals and stakeholder groups and the ability of an organization to avoid stagnation through continuous innovation.

Action learning, not to be confused with action research, also makes implicit assumptions about the importance of grassroots knowledge and interests in developing superior solutions to complex and vexing problems. Marquardt et al. (2009) require that action-learning teams have sufficient diversity in status, knowledge, and perspective to ensure not only that the problem analysis includes a broad shared understanding and agreement on what the root problem is and what contributes to that problem but also that their formal and tacit knowledge are included when formulating an implementation plan.

12.2.4 Methodology of inquiry: dynamic versus descriptive

A distinction can be made between models that are based upon efforts to change organizations and those that describe how organizations have already changed. The former perspective can be described as a dynamic one, in which a practical theory of change is developed by taking action, reflecting on the result, drawing conclusions about what promoted or interfered with change, and adjusting accordingly. This learning paradigm was popularized by Kolb (1984). Lewin is rightfully revered as a social psychologist because of his insistence that theory is of practical as well as intellectual value: “nothing is

as practical as a good theory” (Marrow, 1972, p. 169). Lewin also noted that the best way to learn about an organization or system is to try to change it (Marrow, 1972). This is the change model that forms the dynamic basis for specific change strategies such as action learning (Marquardt et al., 2009).

12.2.5 Four lenses on change

Van de Ven & Poole (2004) have described four basic models (or, in their terms, engines) of change that integrate much of the thinking described in the organizational-change literature.

12.2.5.1 Teleological Perhaps the most popular model, because it aligns so well with typical OD practice models, this includes a cycle of goal-formulation, implementation, evaluation, and action- or goal-modification based upon what is learned or what is desired by the organization or social system. This model aligns well with Lewinian thinking as articulated by theorists such as Kolb (1984). It focuses upon purposeful enactment, social construction, and consensus—all familiar and comfortable operational concepts for mainstream OD and change-management theorists and practitioners.

12.2.5.2 Life cycle This model is also quite popular in the OD and change-management literature. It describes the process of organizational change in terms of stages of development from the “birth” to the “death” or demise of an organization. These stages frequently describe a cycle that includes: (1) start-up, (2) growth, (3) harvest or maturity, (4) decline, (5) life crisis, and (6) renewal or death. The model focuses on forecasting of growth/decline, appropriate regulation of growth and development, and compliant adaptation. It borrows heavily from the frameworks developed in GST (Katz & Kahn, 1978; von Bertalanffy, 1969).

12.2.5.3 Evolution Evolutionary models describe a repetitive sequence based upon a Darwinian (Darwin, 1859) framework of natural variation, selection of the most able or fit, and retention of these characteristics in future generations. The popular “best-practice” approach to organizational decision-making follows this model. Competition for scarce resources drives the process.

12.2.5.4 Dialectic This model borrows from a Hegelian model of change, where conflicts developing between organizations and social systems produce a synthesis and an accepted model, which is later confronted by newer approaches and ideas (Benson, 1977). Confrontation and conflict provide the energy for inevitable change and progress (measured in terms of survival). Schumpeter’s (1942) model of creative destruction has much in common with this.

12.3 Prospectus: Major Theories of Change

The organizing frameworks or lenses described in this section provide the foundational concepts or principles which support a large percentage of the formal models proposed for organizational-change practice that are variously described as OD or change management. The reader will probably note how many of these principles have been incorporated into

specific organizational-change models that are or have been popular in OD and change consultation. The reader will also undoubtedly notice that many of the concepts and principles discussed later in the section have not been operationalized sufficiently to serve as complete OD or change models. It is hoped, however, that practitioners and consultants, informed by these concepts and principles, will develop more sophisticated and nuanced plans for helping organizations and systems promote and respond to change.

Each organizing framework or lens has been selected for its coherency rather than its applicability to all situations. Some of the models have had some very specialized applications, such as paradoxical communication (Watzlawick et al., 1974), while others, such as GST (Katz & Kahn, 1978; von Bertalanffy, 1950, 1969), are very robust and have been applied to a multitude of situations. The more specialized models, however, have a completeness or coherency for certain situations and therefore should be considered by organizational-change theorists and practitioners alike.

The focus of this review will be upon organizational or systems change, although some presentation of individual change will be provided if it is relevant to the dominant focus on organizations and systems. For instance, a number of authors have related recent advances in neuroscience to change (Lawrence, 2010). Each of these lenses can be very valuable in efforts to understand or conceptualize change that may be observed or that has happened. Each has advantages and limitations in suggesting strategies for either dealing with and adjusting to change or for facilitating and supporting change. The reader may find it useful to apply one framework in addressing one kind or area of change and another in addressing a situation that does not include the governing variable highlighted in the first.

12.3.1 Lewinian approaches to change

Lewin's early effort to use behavioral-science theory to solve real, practical problems (Lewin, 1943, 1947a, 1947b) served as an inspiration for a whole generation of social and behavioral scientists immediately after World War II. Learning from efforts to change social systems, Lewin's students and those familiar with his work launched the experiential-learning/laboratory-education movement which dominates "Western"⁶ academic education and management/leadership training today. Many of this movement's well-known innovations, such as T-groups, "flip charts," feedback sessions, and team-building exercises, were developed at national training laboratories by Lewin's students and admirers in the years and decades following his untimely death in 1947 (Bradford, 1967; Marrow, 1967). The roots for the organizational- and systems-change approach that has been termed "OD" are deeply embedded in this tradition (Bennis, 1969).

Lewin was initially interested in going into medicine but later decided to study the related field of biology. When his interests shifted to the study of psychology,⁷ he was strongly influenced by the Gestalt school that was popular in Germany at the time (Marrow, 1974). This approach applied a holistic/dynamic rather than deterministic/reductionist approach to the study of perception and psychological experience (Boring, 1950).

In keeping with this tradition, he developed his field theory and applied it to both personality and social systems, which he viewed as different units of analysis in the psychological field (Lewin, 1951a). For Lewin, behavior could not be understood merely by identifying a linear causal sequence of precipitating events. To understand behavior, one needed to understand the relevant variables in the environment *at that time*, as well as dynamic factors within the individual or individuals. He expressed this relationship as $B=f(P,E)$; behavior is a function of the person and his or her environment (Lewin, 1943).

His well-known *force-field analysis* (Lewin, 1943) is a good example of how this rather theoretical expression can be applied to very practical problems. He reasoned that any behavior that showed stable characteristics must be in some form of dynamic equilibrium. Therefore, to change the behavior to a new one or to a new level of the same behavior, the change agent needed to understand both all the relevant forces driving the new behavior and all the relevant forces resisting any change in behavior. With this analysis completed, the change agent could either increase the driving forces or reduce the restraining forces, thereby eliminating the equilibrium.⁸

Lewin's field theory was a dramatic departure from the deterministic and reductionist psychoanalytic models of change that were popular at the time. Unfortunately, Lewin died before he could develop his ideas about change and social systems further. Fortunately, his students (such as Ron Lippitt, Morton Deutsch, Leon Festinger, Bluma Zeigarnik, Maria Ovsiankina, Kate Lissner, and Vera Mahler) did develop them. The field of study we now term *group dynamics* was inspired by Lewin and was largely developed by students and disciples of, or believers in, his principles for change (see Cartwright & Zander, 1968).

For all those who followed Lewin, change was an experimental process which involved taking action based upon existing theories and ideas, observing the results of the action, developing better models for understanding the behavior and making better predictions, and then modifying the change efforts accordingly. Lewin's was a contemporaneous, forward-looking model based upon action, an approach that was in contrast to the backward-looking, passive analysis of behavior that seemed to characterize psychoanalytic theory. This experimental, contemporaneous, forward-looking stance can be seen in many change strategies that were significantly influenced by Lewin, such as OD (Cummings & Worley, 2008), change management (Kotter, 1996), and action learning (Marquardt et al., 2009).

Further, while the psychoanalytic models of behavior that prevailed during Lewin's time and the mid-20th century provided valuable understanding of the individual as well as the social dynamics of human behavior (Diamond, 1993; Freud, 1930/2005; Kets de Vries, 1984; Levinson, 2006), these theories relied primarily upon increasing insight to change behavior. Lewin's action-based approach was a welcome contrast to the rather passive change approaches developed by psychoanalytically-inspired theorists. Lewin's model, therefore, was enthusiastically embraced by those who believed that rationally-based, planned-change strategies were ideally suited to bring about the social-change campaigns that emerged in the mid-20th century (e.g. democratization of national politics and organizations, civil and human rights, and global economic development). Recognizing Lewin's contributions, many psychoanalytically-grounded theorists also embraced his practice models for enacting organizational change (see Kilburg, 2000).

The following principles/practices of organization and social change can be traced back to Lewin and the influential Lewinian school of social psychology.

12.3.1.1 Data-based decision-making and feedback Lewin's well-known dictum that "nothing is as practical as a good theory" (Marrow, 1952, p. 169) not only demonstrated his belief in the practical as well as theoretical value of theory, but also marked a pivot-point in research in psychology and the behavioral sciences. Previous research in experimental psychology had been primarily conducted in a laboratory, where an effort was made to control for all variables other than the one or two under study (see Boring, 1950). This, of course, violated Lewin's belief that research must study the normal environment in which an event or phenomenon occurs—methodology that is difficult or nearly impossible to achieve in a sterile experimental laboratory. At least in psychology,⁹

Lewin is considered the father of what has been termed “field research,” the study of events or phenomena in their natural environments.

Followers of Lewin, particularly in the field of OD, embraced Lewin’s emphasis on the pragmatics of research in developing action-research models and methods (Argyris, 1970; Greenwood & Levin, 1998; Lewin, 1946). In the action-research approach, practical methods of research, including surveys and interviews of organizational employees, stakeholders, and clients, as well as direct observation and analysis of behavioral data (French & Bell, 1973), are used. The action-research method is reiterative and generally includes the following action cycle: (1) action planning to achieve a goal, (2) taking action, (3) assessing the effects of the action, (4) reflecting on the implications of the action, (5) making any necessary modifications to the initial action plan, and (6) taking action based upon the preceding analysis and modification of the plan (Freedman, 2006). Data collection and research can be conducted during any stage in the cycle, but particularly in stages 1, 3, and 4.

The notion of feedback is particularly important in the action-research model. The output of most academically-oriented research is scholarly publication for other scholars and the academic community. In contrast, the audience for the output or findings of action research primarily comprises organizational decision-makers and the change agents themselves. Another philosophical as well as operational distinction between action research and academically-oriented research is that the analysis of the data in action research is generally led by organizational members (employees as well as leadership), rather than by the researchers who gathered the data. The notion of “feedback loops” created by this feedback process is often associated with GST or cybernetics (computer) theory. The feedback process, however, was observed and identified as a potent change strategy even earlier, by Lewin (1946), as the result of an academic/community-development effort to deal with race-relations difficulties in New Britain, Connecticut. As a result of this early “action research,” feedback loops and processes have been designed into virtually all OD or laboratory-education processes since.

12.3.1.2 Unfreezing–changing–refreezing change model The force-field analysis that has already been addressed in this chapter (Lewin, 1943) forms the basis for this fundamental change model. Once a force-field analysis has been completed, change agents can create an action plan to increase driving forces, reduce restraining forces, or combine these two approaches to “unfreeze” the current equilibrium or status quo. Based upon his change experience, Lewin (1947a) recommended an emphasis on reducing restraining forces when the issue involved significant elements of personal or organizational threat.

Once a new desired level or form of behavior is achieved, the change agent takes action to stabilize and achieve a new equilibrium. During the time in which this model was developed, long periods of relative quiet and stability could be anticipated between organizational crises or change initiatives. As Vaill noted as early as 1996, this assumption of relatively smooth sailing between patches of “white water” no longer seems valid; the pace of change and organizational disruption has only increased over the intervening years (Marquardt et al., 2009).

While the basic “unfreezing, changing, and refreezing” model has necessarily been modified over the years, it continues to be widely used in various forms by change-management practitioners (see Kotter, 1996). Recognizing the increasing turbulence in the organizational environment, the general trend has been to split the larger action-research cycle into changes with smaller-scale and shorter time spans. Figure 12.1 provides a visual presentation of a realistic action-research process in the context of expected turbulence.

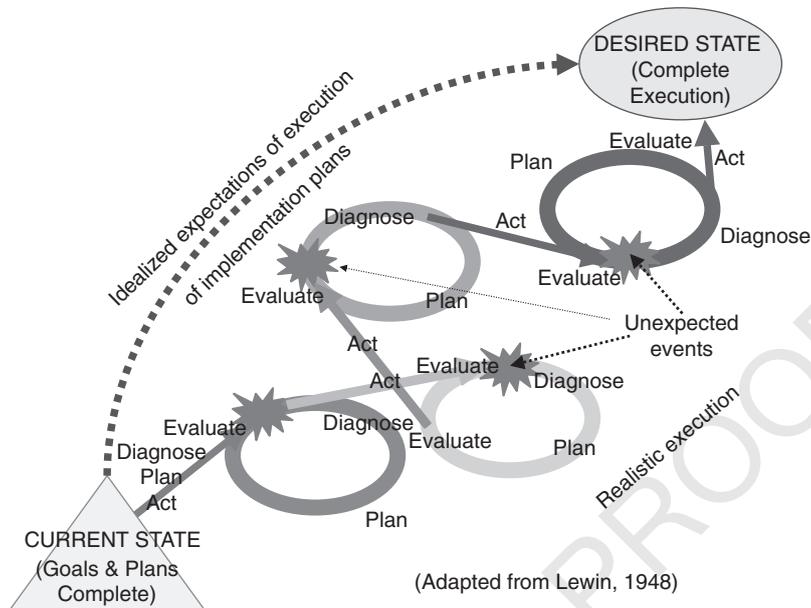


Figure 12.1 Visual presentation of the action-research process in a contemporary change initiative. Adapted from the *Complete Social Scientist: A Kurt Lewin Reader* (pp. 265–284), edited by M. Gold, 1948, Washington, DC: American Psychological Association. Copyright 1948 by the American Psychological Association.

12.3.1.3 Participation in planning and decision-making One key principle in OD and change-management methods is that participation in planning and decision-making generates more engagement and ownership in the change process and, consequently, less resistance and more support for the change plan that is ultimately developed. This strongly-held principle was so well established by the mid-1960s that it was incorporated into Rensis Likert's (1967) System 4. This model was based upon a series of studies using action research and survey feedback to effect organizational change, conducted by the Survey Research Center, part of the Institute for Social Research at Michigan, which continued Lewin's pioneering work at MIT's Research Center for Group Dynamics. Likert (1967) consolidated and ranked organizations into four systems of management, each yielding increasing levels of productivity, quality, and member satisfaction:

- *Exploitive authoritative (System 1)*—Exhibits an autocratic, top-down approach to leadership.
- *Benevolent authoritative (System 2)*—Similar to System 1, except that management is more paternalistic.
- *Consultative (System 3)*—Involves more employee interaction, communication, and decision-making.
- *Participative group (System 4)*—The opposite of System 1. Designed around group decision-making and supervision. This system promotes high degrees of member involvement and participation. Communication is both lateral and vertical and decisions are linked by overlapping group membership (Likert, 1967).

This body of research and practice experience was also incorporated into Blake & Mouton's (1964) management-grid approach, also built upon a series of studies at the University of Michigan, which strongly indicated two distinct but important elements of managerial behavior: (1) concern for production and (2) concern for people (Katz & Kahn, 1952).

Despite the strong belief that OD theorists and practitioners have in the causal link of participation → engagement → ownership → support for strategic change, until recently, limited evidence of direct relationships between these variables was available (Lines, 2004). Lines (2004), however, has reported strong relationships between participation and five change outcomes: goal achievement, resistance to change, loyalty, effort, and identification. Adjusted R^2 (percentage accounted for by participation) ranged from .15 (effort) to .31 (resistance), and the related significance levels were all less than .001. This is strong evidence indeed, and provides significant support for the faith that OD and change-management practitioners and theorists place in this factor.

12.3.1.4 Attitude formation One of Lewin's students, Leon Festinger, developed two principles that have gained great currency in OD and social psychology. The first was his notion of social reality (Festinger, 1954). Festinger demonstrated that what people consider "reality" is socially based. In other words, people use other people's perceptions in establishing what they consider to be real. He noted that this social-comparison process often has more power and weight than actual measures of reality. The notion that "perception is reality" seems universally accepted now, in large measure because of the work of Festinger and other social psychologists (see Asch, 1951) in the 1950s and 1960s. This principle, along with the principle of feedback, serves as the basis for "360-degree surveys," which provide feedback to employees and managers from their subordinates, colleagues, customers, and bosses.

The other well-known principle developed by Festinger was his theory of cognitive dissonance (Festinger, 1957). This states that holding two inconsistent ideas at the same time leads to mental "tension," which causes one or both of the ideas to be modified in order to reduce "cognitive dissonance." One implication of this principle is that changing behavior will also change attitudes when they are inconsistent with each other.

12.3.1.5 Group cohesiveness and identification The power of group cohesiveness and identification was first noted in the well-known "Hawthorne effect" (Mayo, 1949), one conclusion of which was that production goes up merely because of the attention workers receive, rather than because of any objective changes in working conditions. It was also noted, however, that production could be depressed when the pressure to increase it broke informal norms established by the team regarding a fair wage for their work. There seemed to be pressure for behavior conformity to resist "rate-busting." Schacter et al. (1951) provided additional experimental evidence for the power of team cohesiveness to either support or resist change efforts. The Hawthorne studies and later social-psychological experiments demonstrated the importance of developing strong team cohesiveness and of getting the support of currently cohesive social entities in generating successful organizational change. One only has to observe the popularity and ubiquity of "team-building" events to recognize the importance of group cohesiveness and identification.

12.3.1.6 Bases of social power Central to the Lewinian approach to change is the notion that there are many social as well as physical sources of power at play in organizations, particularly in organizational politics. French & Raven (1959) were among the first to

identify the various sources of social power: reward, coercive, legitimate, referent, and expert. These authors pointed to sources that are often overlooked or taken for granted.

12.3.2 GST and change

Von Bertalanffy (1950) introduced GST at about the same time that Lewin (1951b) formulated his field theory. Since many of the basic tenets of field theory and GST are similar, it is only natural that followers of Lewin would embrace GST and use the theoretical rigor of GST to undergird their research and theory. Two basic similarities between field theory and GST stand out. First, both theoretical perspectives are holistic and concerned with the relationships between the relevant elements of the psychological field or system rather than focusing on only one or two variables at a time. Second, both approaches view the dynamic relationships between elements or variables at a given point in time rather than focusing on a linear chain of events among a small group of variables.

Just as Lewin had a multidisciplinary history, GST developed over several decades through a cross-disciplinary group of theorists including von Bertalanffy (1950), a biologist; Boulding (1960), an economist; Ashby (1958), a bacteriologist; J.C. Miller (1955), a psychiatrist; Rapoport (1956), a mathematician; and Emery & Trist (1960) and Katz & Kahn (1978), organizational theorists and psychologists.

GST does not provide a set of strategies for implementing organizational change. Instead, it provides the manual that explains how social and organizational systems work. GST presents the structural model that provides the insights necessary for OD practitioners to develop initial plans for change, which can be implemented and subsequently modified through an action-research process (see Figure 12.1). The common structure and characteristics of all open systems are presented in this subsection (following Ashby, 1958; Boulding, 1960; Miller, 1955; von Bertalanffy, 1950).

12.3.2.1 Importation, transformation, and exportation of energy All open systems have input→throughput (energy transformation or “work”)→output energy cycles (Figure 12.2). Systems also have rich “feedback” links that help them regulate the amount of input and output and the form of the transformation process. This basic and familiar open-systems framework is easy to relate to standard manufacturing processes and provides an accessible and understandable framework to both practitioners and organizational clients.

12.3.2.2 Systems as cycles of events Typically, systems have a repetitive cycle of input→throughput→output (McFarland et al., 1984). Ford produces cars and trucks, Harvard produces graduates, and so on. The primary task of this cycle of events is to preserve and sustain the organization. Each system has a primary task that is critical for its survival. When an organizational system improperly identifies or ignores its primary task, it no longer finds customers for its output or products and runs the danger of becoming incapacitated or even dying. These cycles of events constitute the structure of the system (Allport, 1962).

12.3.2.3 Negative entropy The universal law of entropy, also known as the second law of thermodynamics, states that all systems move towards disorganization, decay, and death. This process is reversed (negative entropy) while the system is alive and sustaining itself. To ensure that systems stay alive and thrive, constant importation of energy or the ability to store energy is required to carry them through lean energy periods.

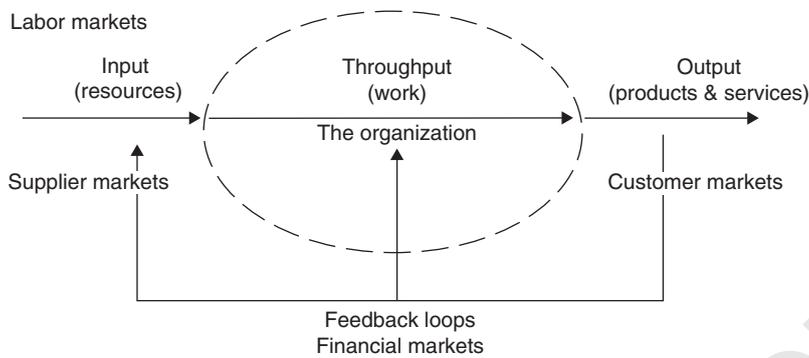


Figure 12.2 The basic open-systems framework relating the input, throughput, output, and feedback links of an organization.

12.3.2.4 Suprasystems and subsystems Every system is embedded in a larger system (the suprasystem) and is composed of smaller systems (subsystems). We often refer to a system's suprasystem as its environment or ecosystem. Subsystems are component parts of a system that are separated by boundaries and are internally consistent with regard to the quantity, quality, frequency, or phase of energy utilization. In organizations, these subsystems may be termed "departments," "business units," "project teams," and so on.

12.3.2.5 Positive and negative feedback Feedback is useful information with to manage or regulate a system. Positive feedback is a message to continue or even amplify current behavior. Negative feedback, on the other hand, is a message to diminish or even discontinue current behavior. Positive and negative feedback function very much like the thermostat in a house or a combustion engine.

12.3.2.6 The steady state of dynamic equilibrium The cycle of energy conversion in an organizational system operates best or most efficiently when there is a relatively stable dynamic state. In other words, systems trend towards dynamic equilibrium if undisturbed by unexpected turbulence. Therefore, organizations tend to resist changes in energy dynamics and will only allow them if accomplishment of their primary task is threatened. This is one reason why periods of crisis represent such good opportunities for change.

12.3.2.7 Growth and expansion Although an organization prefers stability, it also needs to grow in order to survive. One reason for the need to grow is instability in the energy supply; organizations learn that they must generate surpluses or resource reserves in order to buffer themselves in lean economic times. Growth can be accomplished through expansion of current production, diversification of production, or creation of monopolies. Each of these activities gives an organization more control over its environment and destiny.

12.3.2.8 Differentiation Open systems develop through differentiation and elaboration. Start-up organizations have a very simple structure, with organizational members carrying out multiple roles. As organizations grow, roles become more structured and specialized, and additional subsystems (departments and business units) are created. This development allows for greater efficiency, which gives an organization

greater survival capability. On the other hand, increased specialization diminishes the flexibility and adaptability of the organization.

12.3.2.9 Integration and coordination Growth, expansion, and differentiation place great demands on an organizational system to integrate and coordinate its component parts. In organizational systems, integration and coordination serve different purposes (Katz & Kahn, 1978): integration ensures that organizational members share the same norms and values, while coordination ensures that tasks and roles mesh properly.

12.3.2.10 Equifinality This principle states that a system can reach the same final state from differing initial conditions and by a variety of paths. Equifinality provides flexibility for the organizational system to be creative in inventing new, novel, and more-effective ways of accomplishing its primary task. This flexibility, however, is inhibited if its structure is too rigid or if it becomes overencumbered with policy and procedures.

Organizations, from a GST perspective, are very complicated places. They like stability but are constantly knocked off balance by unexpected or unknowable factors and events. There are great advantages to growth, diversification, and creation of monopolies, where they do not need to compete so hard. These processes, however, bring their own problems of integration, coordination, and complacency, which undermine flexibility, creativity, and the desire to change. Organizational systems try to stay in balance with a long-term perspective, but they do so at the risk of being unprepared for or unpracticed in dealing with shorter-term turbulence. GST can be described as a model of organizational systems close to, but never quite in, equilibrium. It can also be described as a linear systems model in which most events and behaviors are predictable most, but not all, of the time.

12.3.3 Bateson and Watzlawick: levels of change, paradox, and the problem of persistence

Gregory Bateson is best known for his double-bind theory for the maintenance, if not genesis, of schizophrenia (Bateson et al., 1956). In essence, Bateson and his colleagues hypothesized that the schizophrenic's peculiar or crazy behavior can be explained by the existence of contradictory and paradoxical messages of the form, "Do A or I'll punish you," and simultaneously, "If you do A, you will get punished just the same." Since the individual cannot do either without incurring punishment, he or she behaves in a new and novel way to escape the double-bind.

Bateson and his colleagues (Watzlawick et al., 1974) supported this theory in an ingenious way by referring to two 19th-century mathematical theories (Bateson, 1972). Using the theory of groups, these authors noted that a group comprises a collection of members with at least one common characteristic *and their combinations*. Take, for instance, the traditional method for telling time (i.e. 24 hours in the day). If you add 4 hours to 11 pm, the time is 3 am, a number which is part of the group. Furthermore, you can combine members of the group in any order and get the same result. Groups also contain an identity member, which when combined with another member returns that member. For instance, in groups whose rule of combination is additive, the identity member is 0 (e.g. $7+0=7$). Finally, every group member has a reciprocal or opposite, so that the combination of any member with its opposite yields the identity member (e.g. 0). Using the rule of combination, 7 plus its opposite (-7) yields 0, the identity member.¹⁰

Watzlawick et al. (1974) used these principles to explain what the authors describe as *first-order change*: transformations in which the results closely resemble one of the members of the group. For example, applying a standard, familiar approach to a problem, you are likely to get a familiar solution, one that may or may not solve the problem. If nothing is done to solve the problem, nothing happens (the identity of the member is retained). Again, this outcome may or may not be beneficial to the problem owner. Trying to do the opposite of what is currently happening will frequently lead to no change at all, since the two behaviors cancel themselves out.

In an earlier treatment of this topic, Watzlawick et al. (1967) describe how “symmetrical” communications—similar but opposite interactions—result in behavioral stalemates. For example, if a boss is concerned that an employee is “slacking off” when not under his or her direct observation and increases surveillance, a predictable response is that the employee will resent the apparent lack of trust and become even more secretive about any activity that might not be seen as work-related. Watzlawick et al. (1967) note that symmetrical interactions tend to spiral to more extreme levels of behavior until the problem “comes to a head” in a result which is not to the benefit of either party.

12.3.3.1 The problem of persistence Watzlawick et al. (1974) also use the theory of groups to deal with the problematic issue of problem or symptom persistence. Why is it, one may ask, that people, teams, and organizations continue to apply the same solutions when they keep getting the same results? Most readers will be familiar with the following quote: “Insanity is doing the same thing over and over again and expecting different results” (attributed to Einstein). The identity of a new “solution” that does not solve the original problem is referenced in the French proverb, “*Plus ça change, plus c’est la même chose*”; the more things change, the more they stay the same.

Watzlawick et al. (1974) reasoned that people in families, social systems, and organizations are trying to effect change but are using first-order change strategies that almost guarantee the problem will not be solved or that a new but familiar result will emerge that is as problematic as the problem itself. The familiar oscillation between efforts to centralize and decentralize operations in an organization is an example of a system caught in a first-order-change behavioral circle. Over-reliance on “best practices” also ensures that organizations will use solutions that worked well in the past but may not be appropriate for a new, unforeseen, and therefore disruptive situation.

First-order-change solutions are usually based upon conventional common sense and past experience, and have a reasonable chance of success if they were successful in the past and the presenting situation is sufficiently familiar and understood by the organization. The rub comes when new and unprecedented problems confront the organization for which no current acceptable solution exists (i.e. it is not part of the current set of solutions). In this situation, a transformational, or second-order, change strategy that transcends a given system or frame of reference is required.

In order to understand second-order change, Bateson (1972) and Watzlawick et al. (1974) refer to a second mathematical theory, the theory of logical types, proposed by Whitehead & Russell (1962). This creates a construction superordinate to a group class. While a class has members, as does a group, the theory of logical types specifies that in the case of classes, the collection of members is distinct from any one member; for example, mankind is the class of all people but is not represented by any individual human. One implication of this theory is that unprecedented problems require a “jump” in the conceptual frame from the familiar formulation to a higher level of

conceptualization. For example, it has been amply demonstrated that running an individual business or family finances requires a different set of principles and strategies (e.g. microeconomics) from running a national or international economy (e.g. macroeconomics).

In recent years, this jump to a higher, or at least unique, level of conceptualization has been described as a “paradigm shift” (Kuhn, 1962). In order to address new and unprecedented situations and problems, managers and leaders are constantly being encouraged to “think outside the box.”¹¹

The preceding discussion of first- and second-order change may remind some readers of Argyris’ description of single- and double-loop learning. Although the correspondence isn’t exact, there is a fair degree of overlap in the concepts. Like Bateson (1972) and Watzlawick et al. (1974), Argyris & Schön (1974) were concerned with the changes in traditional and conventional learning approaches required to solve complex, novel, and unprecedented problems. For these authors, single-loop learning focuses primarily upon discrepancies between expected and obtained outcomes (e.g. results). Organizations and systems can adjust behavior/performance in accordance with accurate feedback, much as a thermostat adjusts temperature to meet an expected or set level. This process necessarily involves first-order change, since there are no changes in the assumptions about how the system works and change efforts involve solutions that are part of the group of solutions that are already known (and therefore reside, conceptually, in the same class or level). Single-loop learning is fine in everyday situations where the operational principles are well known and incremental adjustments in behavior yield results that are predictably positive.

When conventional solutions no longer work, however, individuals and organizations need to include double-loop learning in bringing about change. In double-loop learning, consideration is given to governing variables, operating assumptions, goals, and values. While single-loop inquiry asks whether we are doing things right, double-loop inquiry asks whether we are doing the right things. Since asking these questions is in a different class to strictly operational issues and therefore is “meta” to single-loop questions, they are clearly in the category of Bateson (1972) and Watzlawick et al.’s (1974) second-order change.

12.3.3.2 Strategies for achieving second-order change Bateson (1972) and Watzlawick et al. (1974) agreed with Confucius that change and persistence cannot be considered in isolation; one needs to understand persistence in order to comprehend, much less bring about, change. This realization will lead the successful change agent to examine why people: (1) ignore the need to change; (2) are fearful of change; (3) keep applying failed solutions; and (4) vastly oversimplify a situation, the factors involved in a problem, and the necessary actions to solve a problem.

It is difficult, and in many cases impossible, to provide instructions for directly solving a problem requiring a second-order solution. After all, in most cases, conventional and common-sense solutions have already been tried and have failed. Furthermore, Watzlawick et al. (1974) reported that even effective second-order change agents frequently cannot easily identify what it was they did that brought about change. These change agents employ a number of strategies that set the stage for change and have great confidence that individuals and systems will make corrections or find solutions to problems, unconsciously if not consciously, in order to get out of the unconstructive, destructive, and self-defeating “doom loops” they find themselves in.

Here is a sample of some second-order change tactics:

- (1) *Frustrate the change*—One tactic is to openly predict that the individual or client system cannot change; that it is powerless to change given all the obstacles and impediments that faces it. This strategy works on two principles: (1) people respond well to challenges, especially if others underestimate them; and (2) people reflexively react to instruction by moving in the opposite or a new direction (reverse psychology).
- (2) *Show appreciation for the fact that individuals and members are doing what they think is best for the client system*—This strategy reflects the belief that individuals in the system are trying their best to make good decisions and believe they are taking appropriate action for the welfare and survival of the system. This principle is consistent with the appreciative-inquiry strategy (Cooperrider, 1999) and the positive-psychology approach (Snyder & Lopez, 2001) of focusing on strengths and positive aspirations rather than on deficiencies and dysfunctional behavior. In many cases, showing appreciation and respect for efforts that the client system is making to solve a problem minimizes defensiveness and allows the client system to explore other solutions which hold more promise. When debriefing problem-solving efforts, it is usually more effective to ask a team to reflect on what it did well than on how it failed or what it did poorly. With these efforts recognized and appreciated, the team can then be asked for areas in which it can improve even more (Marquardt et al., 2009).
- (3) *Ask more questions about what solutions have been tried, rather than trying to figure out why the situation is difficult to change*—In many cases, the solution that is attempted is the problem. If one can suppress the urge to ask *why* something is happening and focus instead on *what* the system is trying to do to correct the problem, the resulting investigation will provide one with information about why the problem is persisting and how first-order change efforts might actually be perpetuating and supporting it. With this information, one may be able to formulate a second-order plan that has promise as a means of upsetting dysfunctional patterns of interaction.
- (4) *Reframe the situation*—Reframing changes the “conceptual and/or emotional setting or viewpoint in relation to which a situation is experienced” and places “it in another frame which fits the ‘facts’ of the same concrete situation equally well or even better, and thereby changes its entire meaning.” During one of the many 19th-century riots in Paris, the commander of an army detachment was ordered to clear a city square by firing into the canaille (disorderly rabble). Instead, the commander ordered his troops to level their rifles at the crowd and commenced to bellow at the top of his lungs, “Mesdames, m’sieurs, I have orders to fire at the canaille. But as I see a great number of honest, respectable citizens before me, I request that they leave so that I can safely shoot the canaille” (Watzlawick et al., 1974, p. 81). The square emptied very quickly after this reframing of the situation by the commander. The facts on the ground had not changed, nor had the commander’s orders. By reframing the crowd as a mixture of law-abiding citizens and lawless rabble, however, the commander had altered the situation to the advantage of both the crowd and the long-term interests of the state.
- (5) *Create paradoxes that make it difficult for the client system to persist in its current dysfunctional behavior*—Creating paradoxes to change behavior is an advanced tactic and is typically attempted when all other efforts fail. Paradoxical tactics seem risky because they often prescribe the symptom to the client. Some paradoxical instructions seem harmless enough—such as instructing an insomniac, at all costs, to stay

awake as long as he or she can. Others may appear potentially counterproductive or even dangerous—such as confronting organizational leaders about why they want the organization to change when it is still profitable.

12.3.4 Chaos and complexity theories

As noted in Section 12.3.2, GST best describes organizational behavior in close-to-stable equilibrium states. It can also be described as a linear-systems model; that is, behavior is directly proportional to the sum of relevant inputs. Linear systems are generally expressed by simple input/output relationships and change tends to be easily regulated, orderly, and incremental. First-order-change efforts are generally effective in organizational systems that are behaving in accordance with linear-systems principles (i.e. as predicted by GST).

The GST model, however, is not as useful when dealing with organizational systems that are operating in environments that do not allow them to settle into comfortable patterns and cycles of dynamic equilibrium. When organizational systems are operating far from equilibrium, the environment becomes chaotic and demonstrates nonlinear features (Stacey, 1992; Stacey et al., 2000). In nonlinear systems, output responses are not directly proportional to inputs, since the system response is not a simple sum of systems inputs. As many readers are aware, very strange things happen in nonlinear, far-from-equilibrium, chaotic environments. Small events produce very large and unpredictable results (the so-called “butterfly” effect: Butz, 1997; Lorenz, 1963). Systems characterized by nonlinear dynamics (e.g. weather) are notoriously difficult and require enormous computing power to predict.

An adequate treatment of chaos and complexity theories is not possible in this review. Some of the principles related to these theories do have practical relevance to this discussion, however:

- (1) It should be apparent to the reader, for instance, that first-order solutions are generally ineffective in nonlinear, chaotic environments. In fact, first-order solutions often make situations worse (Watzlawick et al., 1974).
- (2) Double-loop learning (Argyris & Schön, 1974) is necessary if organizational systems are to operate effectively in chaotic environments. Since simple operating principles no longer work in chaotic environments, organizational members at all levels must be able and willing to examine governing principles, assumptions, goals, and values if they are to have any hope of dealing with any predictable surprises that emerge.
- (3) The typical bureaucratic practices and policies that lead to predictability and stability become a liability when organizations need to be agile, creative, and innovative (Stacey, 1992). Since it is impossible to know what or who will be needed, even in the near future, organizations that rely on creativity and innovation (e.g. Apple or Google) purposely fuzz lines and levels of authority and power, and give people time off to “play” with ideas and concepts.
- (4) Chaotic environments place a premium on the ability of organizations to quickly self-organize rather than implement a long-term plan. Organizational charts become very fluid and time horizons for strategic plans are shortened (Stacey et al., 2000).
- (5) In chaotic and highly-complex environments, it is very hard to establish cause and effect (Stacey, 1992). By the time the organization fully understands what happened in the past, a new future is upon it. As Watzlawick et al. (1974) noted, a first-order analysis of *what* just happened—action and response—may be more useful than a comprehensive understanding of *why* it happened. An analysis of first-order cause

- and effect, combined with deft and rapid self-organization by management and employees, often carries the day in highly-chaotic environments.
- (6) Systems dynamics in chaotic environments are highly sensitive to some changes but remarkably insensitive to others (Stacey, 1992). Moreover, it is devilishly difficult to predict which changes will result in huge versus minimal impact. Consequently, an implementation plan resembling the process represented in Figure 12.1 is usually preferable to strict adherence to a project plan in highly-chaotic and -unstable environments.
 - (7) Organizations in highly-unstable markets or markets that require high levels of creativity may develop practices and policies that discourage stability and encourage chaos (1992). High levels of creativity, novelty, and self-organization are required when organizations operate in the highly-dynamic and unpredictable border between order and chaos. “Silicon Valley,” outside of San Francisco, can be described as one such region where purposeful chaos can be useful.
 - (8) Complex and chaotic environments place a premium on the development of organizational learning capabilities. As Figure 12.1 demonstrates, organizations cannot expect that a simple, linear path to their goals exists. Organizational members at all levels must be able to develop a workable understanding of complex dynamics and invent new solutions to novel and unprecedented challenges.

12.3.5 Behavioral models of change

Behavioral models for behavior change have been around since the early to mid-20th century and many behavioral principles are so solidly embedded in organizational practices and policies that we hardly notice them. For instance, the extensive use of rewards/incentives to shape desired behavior and punishments/sanctions to stop/extinguish undesirable behavior was inspired by the work of behaviorists such as Skinner (Ferster & Skinner, 1957). Likewise, classical Pavlovian principles (e.g. pairing a “neutral” object or event with an event that elicits a predictable response (pleasure, fear, desire) to obtain a “conditioned” response (Pavlov, 1927/1960)) are used in a variety of ways to elicit emotional reactions, attitudes, and involuntary behavioral responses.

Behaviorism is also associated with a focus on behavioral rather than internal mental operations in order to understand behavior or bring about change (Watson, 1930). In contrast to psychoanalytic and Gestalt psychology, early behaviorists displayed little interest in mental thoughts, images, emotion, attitudes, and so on as antecedents to change. Behavioral change or behavior modification could be effected by identifying a behavioral goal and applying behavioral-change principles such as the use of rewards and punishment to shape and strengthen the desired behavioral goal (Martin & Pear, 2007).

In recent years, there has been an integration of cognitive/mental and behavioral-change models to bring about specific behavioral goals (Rachman, 1997). An example of this integrative approach is the transtheoretical model (TTM) for treating habitual or addictive behaviors, traditionally considered some of the most difficult to change (Prochaska & DiClemente, 1994). Prochaska & DiClemente (1994) have identified the following stages in the change process for these types of behavior: precontemplation, contemplation, preparation, action, and maintenance. The TTM approach provides cognitive and behavioral learning activities to address the known obstacles to behavioral change. Chapter 17 provides research data on and discussion of the application of these cognitive/behavioral principles to organizational systems change.

While change models such as TTM show promise, it remains to be demonstrated that these methods can be useful in large-scale systems change initiatives. Cognitive/behavioral methods are best used in first-order-change environments where change agents have a good understanding of the cognitive conditions and behavioral reinforcers which maintain undesirable behaviors and need to be changed in order to bring about the desired ones; they are generally not suitable for unpredictable and unstable environments that demonstrate nonlinear systems effects and require second-order change strategies.

12.3.6 Psychoanalytic approaches to change

While psychoanalysis has primarily been focused on personal change, a number of authors have provided a psychoanalytic treatment of organizational life (Diamond, 1993; Kets de Vries & Miller, 1984). These accounts provide a detailed analysis of the inner life of key leaders in organizations and how intrapsychic and interpersonal difficulties (i.e. neuroses and character orders) result in dysfunctional and self-defeating organizational behavior. While these accounts mix in some organizational-change concepts in the discussion, no organizational-change model is offered in addition to the traditional change model provided by psychoanalytic-inspired treatment models. That is, change interventions consist primarily of individual consultation with key leaders and their teams, in which insight and confrontational interpretations of organizational behavior are offered.

There is a very limited psychoanalytic literature related to organizational systems change. While intensive psychoanalytic interventions may result in second-order change and significant improvement in the functioning and behavior of key executives, it is difficult to see how this approach can be “scaled-up” to effect large-scale organizational change. Moreover, psychoanalytically-oriented change interventions are inevitably focused on dysfunctional behavior and thereby provoke resistance and attack. We see these methods as having value and usefulness when the focus is on improving the functioning and decision-making of key executives. In fact, most of the psychoanalytically-oriented literature on change *has* been focused on the effectiveness and process of executive coaching (Diamond, 1993; Kets de Vries & Miller, 1984; Kilburg, 2000; Levenson, 2006).

12.3.7 Neuroscience and change

Recent advances in neuroscience provide us with a better understanding of the person in Lewin’s expression of the relationship between behavior (B), the person (P), and the environment (E) at any given time: $B=f(P,E)$. With the exception of psychoanalytic approaches, most change theories assume that people make more or less rational decisions as either change agents or as the objects of change. Emotional responses such as fear are assumed to be rational responses to the dangers involved in change. Furthermore, people are expected to make rational decisions based upon the expectation that a certain response will result in the largest benefit in relation to the costs involved.

Economic models in the latter part of the 20th century assumed a perfectly rational marketplace which, almost mysteriously, factored in all of the relevant variables in establishing prices and making economic decisions (e.g. the efficient market hypothesis: Fama, 1965). Counterarguments that economic decisions were not always made on the basis of cool-headed rational analysis (individually or collectively) were strengthened by analyses of the emotionally-exaggerated decisions of investors in the run-up “bubble” of 2004–2006 and the ensuing panic-selling of late 2008 (Fox, 2009).

Early theories of why people fail to maximize their self-interest in many situations—as Adam Smith (1776/2003) predicted they will—pointed to the archaic functioning of the brain’s limbic system (see Bernstein & Rosen, 1990): primitive emotions (fear, rage, greed, lust, etc.) controlled by neural structures in the limbic system overwhelm the more reasonable and rational neocortex, leading to actions that may have some value in terms of short-term protection and gratification but in the longer term are dysfunctional.

These arguments, however, were less persuasive when neuroscience discovered that there were much more complex relationships between various limbic structures and cortical structures, specifically the prefrontal cortex (Damasio, 1994, 1999). Damasio’s research indicated that limbic structures play an intermediate role between perceptual organs and the brain in “marking” input that is of potential harm or benefit to the individual. This information is then passed through a rich neural network to the prefrontal cortex for further processing and decision-making. The results of this neural processing are then sent back through the limbic structures to produce muscular/motoric action.

Effective behavior requires successful integration of both the limbic system and the prefrontal cortex. The prefrontal cortex has been described as being responsible for “executive” functioning and is the last area of the brain to mature, often in a person’s 20s. Wilson (1998) notes that “without the stimulus and guidance of emotion, rational thought slows and disintegrates” (p. 113). Pinker (1997) commented further on the connections between the archaic “dinosaur” brain of the limbic system and the more recently developed prefrontal-cortical structures: “Intelligence is the pursuit of goals in the face of obstacles ... emotions are mechanisms that set the brain’s highest-level goals ... emotion triggers the cascade of subgoals and sub-subgoals that we call thinking and acting” (pp. 372–373).

The recently-acquired understanding of neural functioning has been applied to change in several ways. Rock (2009) has provided a synthesis of all brain functioning (all paleo- and neocortical structures) to provide insight into the impact of neural processes on behavior. The expressed purpose of these accounts is to help everyone, no matter their position or situation, understand their own reactions and behaviors, as well as those of people that they come into contact with or deal with, helping them to become more successful and productive as leaders, team members, and employees. This information has broad usefulness in the discussion of change and personal coaching (Rock & Page, 2009), but is not structured sufficiently to provide specific guidance for larger-scale change efforts.

Lawrence & Nohria (2002) and Lawrence (2010) have taken a more focused approach to the new brain research, examining the relationship between limbic and prefrontal-cortex structures to posit a small group of primary motives that must be attended to if change agents are to capture the “hearts and minds” of those who must implement or will be the objects of an intended change. Earlier in his career, Lawrence had become well-known for his analytic/rational approach to organizational differentiation and integration (Lawrence & Lorsch, 1969). His most recent research represents a more balanced treatment of analytic/rational and emotional factors involved in organizational behavior.

This research also integrates the emerging work of evolutionary psychology (Buss, 1999; Pinker, 1994) with the clinical findings of neuropsychology, some of which have already been described (Damasio, 1999). Using a neo-Darwinian argument, Lawrence & Nohria (2002) and Lawrence (2010) argue that the process of genetic variation, selection for survival, and retention through successful breeding accounts for a group of four

primary drives/motives that are innately determined and operationalized through the limbic/prefrontal-cortex system: (1) acquisition, (2) bonding, (3) learning, and (4) defending.¹² Lawrence's work should be a reminder to anyone contemplating or planning change to take into consideration basic and innate human needs.

12.4 Conclusion

After completing this extensive review of the literature relevant to organizational change, the reader may have come to appreciate the power and usefulness of Lewin's model not only for understanding but for bringing about organizational change. Not only does the $B=f(P,E)$ expression contain all the forces necessary for understanding and planning organizational change, but the requirement that this be a "here-and-now," contemporary rather than historical analysis provides the basis for action rather than passive, "hands-off" analysis. This is not to say that an understanding of the past is not useful, merely that this information must be translated into a "here-and-now" formulation that can be used as the basis for experimental action. Lewin's model, therefore, promotes a forward-looking approach to organizational change: (1) Based upon what we know now about the system, what is our best plan for going forward? (2) Based on the initial results of this plan, what is working, what can be improved, and what do we want to change? (3) Based on further experience with our revised plan, how do we need to change our initial formulation of the problem? (4) Based on the final results of the plan, how do we want to change our thinking about the problem and how do we want to change our goals and objectives? (5) based upon the analysis in (4), do we want to pursue these new goals and objectives?

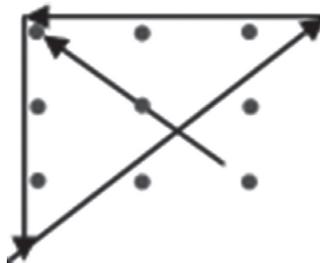
Each of the schools of thought and approaches discussed in this chapter can be useful at one point or another in the problem formulation/solution cycle. GST (von Bertalanffy, 1950) provides a very useful model of organizational systems in an environment that has enough predictability and stability to allow for conventional thinking and first-order change. Where organizations face highly-unstable, chaotic, and explosive environments, as well as unprecedented challenges and threats, however, the principles and strategies suggested by Bateson (1972), Watzlawick et al. (1974), and Stacey (1992) are very useful in fostering creativity and bringing about second-order change.

Psychoanalytically-inspired change strategies (Diamond, 1993; Kets de Vries & Miller, 1984) can be very helpful in allowing individuals, especially leaders, to gain a deeper understanding of the personal and organizational dynamics that disrupt and inhibit effective functioning. With this information, organizational leaders can apply Lewin's useful change cycle to "unfreeze," change, and "refreeze" performance levels. The new knowledge being obtained in the rapidly-advancing field of neuroscience (Lawrence, 2010; Lawrence & Nohria, 2002) can be useful in developing organizational-change strategies that take into account the basic human drives that motivate human behavior.

The principles and strategies of change presented in this chapter provide the foundations for many of the topics presented in the companion chapters in this volume. These principles and strategies undergird most of the methods we refer to as "organizational change," "change management," and "leadership"—companion volumes in this series of handbooks. While our understanding of the process will undoubtedly increase in the future, many of the principles and strategies described in this chapter are, in fact, timeless.

Notes

- 1 Wilhelm (1960) speculates that the origins of the I Ching go back much further: Fu Hsi (c. 2800 BC) devised the first symbols, and the first of the classic hexagrams emerged in the Hsia dynasty (2205–1766 BC).
- 2 This is actually an amalgam of different thoughts attributed to fragments of Heraclitus' writings on the subject of "universal flux" (Wheelwright, 1959, p. 29): (1) everything flows and nothing abides; everything gives way and nothing stays fixed; and (2) you cannot step twice into the same river, for other waters are continually flowing on.
- 3 The proposition of voluntary change introduces the thorny issue of free will and choice. From a psychological/philosophical standpoint, it can be argued that all change is dictated by either an existing condition (the nature or DNA of the organization) or a reaction to external events. In either case, it can be questioned whether the organization is really making a voluntary choice based upon free will. This is not the place for a more in-depth discussion of this issue, but cultural assumptions about free will and choice have significant and profound consequences for the way decisions are made within organizations and systems.
- 4 The quasistationary equilibrium state described by Lewin (1947) is analogous to the punctuated-equilibrium model described by Tushman & Romanelli (1985).
- 5 This approach has particular strength within professional management circles, with the Strategic Management Society having over 2600 members in 2011.
- 6 While the influence of North American and European theory and practice is being challenged in some parts of the world, notably Asia, "Western" approaches are still highly influential and are imitated across the globe.
- 7 Lewin was a student of Carl Stumpf, an early philosopher/psychologist who had a strong influence on the views of leading psychologists of the Gestalt school, such as Max Wertheimer, Wolfgang Köhler, and Kurt Koffka (Boring, 1950).
- 8 Lewin (1943) further argued and provided evidence that, as a general rule, reducing restraining forces was more effective than increasing driving forces in changing behavior in situations where individuals experienced feelings of threat related to the desired change.
- 9 There is a long history of field research in disciplines such as cultural anthropology (Burgess, 1984) and sociology (Durkheim, 1895; Nisbet, 1967). In psychology, however, there are few examples before Lewin. The current enthusiasm for qualitative research (Patton, 2002) can be traced back to Lewin.
- 10 This is a very brief treatment of Bateson and Watzlawick's discussion of the theory of groups in relation to change. Readers are encouraged to read Watzlawick et al. (1974), pp. 2–5, for a much more in-depth treatment of the subject.
- 11 This term, apparently, is a direct reference to the familiar nine-dot puzzle "box," which requires new ways of thinking to solve. The puzzle requires you to connect all nine dots in the box with only four lines (Loyd, 1914).



Another example was observed by the author when his local 76-year-old contractor was informed by a neighbor that the roof elevation of his addition to our summer cottage exceeded the local ordinance by 6 inches. The contractor thought about the problem for a few moments and then came up with a

very practical solution that was inexpensive and simple and certainly not conventional. Instead of lowering the roofline by reducing the frame of the roof, he simply ordered a load of dirt to be dumped around the foundation of the cottage where the elevation exceeded the standard.

- 12 Earlier, Freud (1961), on the basis of his clinical work, had posited that “The communal life of human beings had, therefore, a two-fold foundation: the compulsion to work, which was created by external necessity, and the power of love” (p. 48). Lawrence’s list of innate drives can also be compared with Maslow’s (1954) hierarchy of needs, which have gained almost universal currency in explaining human motivation. Lawrence assumes that activation of these four drives in coordination with an effective prefrontal-cortical response will ensure the best fit of the individual with the environment, resulting in successful competition of their genes with the genes of others in the propagation of the species. Both Freud’s and Maslow’s observations and theories can be accounted for using Lawrence’s four-drive theory. Some might argue that Maslow’s highest-level need, self-actualization, is superordinate, and therefore separate, from the practical need to learn in the pursuit of successful adaptation to the environment. The fact that Maslow found so few individuals who were truly self-actualized provides a counter—perhaps cynical—argument for the differentiation of Maslow’s need for self-actualization and Lawrence’s drive to learn.

References

- Allport, F. (1962). A structuronomic conception of behavior: individual and collective. *Journal of Abnormal and Social Psychology*, 64, 3–30.
- Asch, S.E. (1951). Effects of group pressure upon the modification and distortion of judgment. In H. Guetzkow, editor. *Groups, Leadership and Men*. Pittsburgh, PA: Carnegie Press
- Argyris, C. (1970). *Intervention Theory and Method*. Reading MA: Addison-Wesley.
- Argyris, C. & Schön, D. (1974). *Theory in Practice: Increasing Professional Effectiveness*. San Francisco, CA: Jossey-Bass.
- Ashby, W. (1958). General systems theory as a new discipline. *General Systems Yearbook*, 3, 1–6.
- Bateson, G. (1972). *Steps to the Ecology of Mind*. New York: Ballantine Books.
- Bateson, G., Jackson, D.D., Haley, J., & Weakland, J. (1956). Toward a theory of schizophrenia. *Behavioral Science*, 1, 251–264.
- Bennis, W.G. (1965). Theory and method in applying behavior science to planned organizational change. *The Journal of Applied Behavioral Science*, 1(4), 337–359.
- Bennis, W.G., Benne, K.D., & Chin, R., editors. (1969). *The Planning of Change*. New York: Holt, Rinehart and Winston.
- Benson, J.K. (1977). Organizations: a dialectic view. *Administrative Science Quarterly*, 22, 1–21.
- Bernstein, A.J. & Rosen, S.C. (1990). *Dinosaur Brains*. New York: Ballantine Books.
- Blake, R. & Mouton, J. (1964). *The Managerial Grid: The Key to Leadership Excellence*. Houston: Gulf Publishing Co.
- Bradford, L.P. (1967). Biography of an institution. *Journal of Applied Behavioral Science*, 3, 127–143.
- Boring, E.G. (1950). *A History of Experimental Psychology*, 2nd edition. Englewood Cliffs, NJ: Prentice-Hall.
- Boulding, K. (1960). Towards a general theory as a new discipline. *General Systems Yearbook*, 5, 66–75.
- Burgess, R.G. (1984). In *the Field: An Introduction to Field Research*. Hemel Hempstead, UK: George Allen & Unwin.
- Buss, D. (1999). *Evolutionary Psychology: The New Science of the Mind*. Boston: Allyn & Bacon.
- Butz, M.R. (1997). *Chaos and Complexity: Implications for Psychological Theory and Practice*. New York: Taylor & Francis.
- Cartwright, D. & Zander, A., editors. (1968). *Group Dynamics: Research and Theory*, 3rd edition. New York: Harper & Row.

- Child, J. (1972). Organization, structure, environment and performance: the role of strategic choice. *Sociology*, 6(1), 1–22.
- Child, J. (1997). Strategic choice in the analysis of action, structure, organizations and environment: retrospective and prospect. *Organization Studies*, 18(1), 43–76.
- Cooperrider, D. (1999). *Appreciative Inquiry: Rethinking Human Organization Toward a Positive Theory of Change*. Champaign, IL: Stipes Publishing.
- Cummings, T.G. & Worley, C.G. (2008). *Organization Development and Change*. Mason, OH: South-Western Cengage Learning.
- Damasio, A. (1994). *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: Putnam.
- Damasio, A. (1999). *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York: Harcourt Brace.
- Darwin, C. (1859). *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*, 1st edition. London: John Murray.
- Davenport, T. (1995). The fad that forgot people. *Fast Company*, 1(October), 70–75.
- De Greene, K.B. (1973). *Sociotechnical Systems: Factors in Analysis, Design, and Management*. Englewood Cliffs, NJ: Prentice-Hall.
- Demers, C. (2007). *Organizational Change Theories*. London: Sage Publications.
- Diamond, M.A. (1993). *The Unconscious Life of Organizations: Interpreting Organizational Identity*. Westport, CT: Quorum Books.
- Donaldson, L. (1996). The normal science of structural contingency theory. In S. Clegg, C. Hardy, & W. Nord, editors. *Handbook of Organizational Studies*. London: Sage. pp. 57–76.
- Emanuel, R. (2009). A 40-year wish list. *Wall Street Journal*. January 28, p. A14.
- Emery, R. & Trist, E. (1960). Socio-technical systems. In C.W. Churchman & M. Verhurst, editors. *Management Science Models and Techniques*, vol. 2. London: Pergamon.
- Emery, F. & Trist, E. (1965). The causal texture of organizational environments. *Human Relations*, 18, 21–32.
- Fama, E. (1965). The behavior of stock market prices. *Journal of Business*, 38, 34–105.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140.
- Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press.
- Fox, J. (2009). *Myth of the Rational Market*. New York: Harper Business.
- Freedman, A.M. (2006). Action research: origins and application for OD&C practitioners. In B.B. Jones & M. Brazzel, editors. *The NTL Handbook of Organization Development and Change*. San Francisco: Jossey-Bass/NTL Institute.
- Freeman, R.E. (1984). *Strategic Management: A Stakeholder Approach*. Boston: Pitman.
- French, W.L. & Bell, C. (1973). *Organization Development: Behavioral Science Interventions for Organization Improvement*. Englewood Cliffs, NJ: Prentice-Hall.
- French, J. & Raven, B. (1968). The bases of social power. In D. Cartwright & A. Zander, editors. *Group Dynamics: Research and Theory*. New York: Harper & Row. pp. 259–269.
- Freud, S. (1930/2005). *Civilization and its Discontents* (trans. J. Strachey). New York: W.W. Norton.
- Freud, S. (1961). *Civilization and Its Discontents* (trans. James Strachey). New York: Norton.
- Gersick, C. (1991). Revolutionary change theories: a multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review*, 16(1), 10–36.
- Golembiewski, R.T. (1972). *Renewing Organizations: The Laboratory Approach to Planned Change*. Itasca, IL: F.E. Peacock Publications.
- Greenwood, D.J. & Levin, M. (1998). *Introduction to action research: social research for social change*. Thousand Oaks, CA: Sage Publications.
- Hamel, G., Prahalad, C.K., Thomas, H., & O'Neal, D., editors. (1999). *Strategic Flexibility: Managing in a Turbulent Environment*. New York: John Wiley & Sons.
- Hannan, M.T. & Freeman, J.H. (1984). Structural inertia and organizational change. *American Sociological Review*, 49, 149–164.
- Hedberg, B., Nystrom, P., & Starbuck, W. (1976). Camping on seesaws: prescriptions for a self-designing organization. *Administrative Science Quarterly*, 21(1), 41–65.

- Kantor, R.M. (1983). *The Change Masters*. New York: Simon & Schuster.
- Katz, D. & Kahn, R.L. (1952). Some recent findings in human relations research in industry. In G.W. Swanson, T.M. Newcomb, & E.L. Hartley, editors. *Readings in Social Psychology*, 2nd edition. New York: Holt. pp. 650–665.
- Katz, D. & Kahn, R.L. (1978). *The Social Psychology of Organizations*. New York: John Wiley & Sons.
- Kets de Vries, M.F.R. & Miller, D. (1984). *The Neurotic Organization*. San Francisco: Jossey-Bass.
- Kilburg, R.R. (2000). *Executive Coaching: Developing Wisdom in a World of Chaos*. Washington, DC: American Psychological Association.
- Kolb, D. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.
- Kotter, J.P. (1996). *Leading Change*. Cambridge, MA: Harvard Business Press.
- Kuhn, T.S. (1962). *The Structure of Scientific Revolutions*. Chicago, IL: University of Chicago Press.
- Lawrence, P.R. (2010). *Driven to Lead: Good, Bad, and Misguided Leadership*. San Francisco: Jossey-Bass.
- Lawrence, P.R. & Lorsch, J.W. (1969). *Organization and Environment: Managing Differentiation and Integration*. Homewood, IL: Richard D. Irwin.
- Lawrence, P.R. & Nohria, N. (2002). *Driven: How Human Nature Shapes our Choices*. San Francisco: Jossey-Bass.
- Levenson, H. (2006). *Harry Levenson on the Psychology of Leadership*. Cambridge, MA: Harvard Business Press.
- Lewin, K.Z. (1943). Defining the “Field at a Given Time.” *Psychological Review*, 50, 292–310.
- Lewin, K.Z. (1946). Action Research and Minority Problems. *Journal of Social Issues*, 2(4), 34–46.
- Lewin, K.Z. (1947a). Group decision and social change. In T.M. Newcomb & E.L. Hartley, editors. *Readings in Social Psychology*. New York: Henry Holt and Co. pp. 340–344.
- Lewin, K.Z. (1947b). Frontiers in group dynamics. In D. Cartwright, editor. (1951). *Field Theory in Social Science: Selected Papers by Kurt Lewin*. Chicago, IL: The University of Chicago Press.
- Lewin, K.Z. (1951a). *Field Research in Social Science: Selected Theoretical Papers*. D. Cartwright, editor. New York: Harper & Row.
- Lewin, K.Z. (1951b). *Field Theory in Social Science*. New York: Harper.
- Lewin, K.Z. (1958). *Group Decision and Social Change*. New York: Holt, Rinehart and Winston.
- Likert, R. (1967). *The Human Organization: Its Management and Value*. New York: McGraw-Hill.
- Lines, R. (2004). The influence of participation in strategic change: resistance, organizational commitment and change goal achievement. *Journal of Change Management*, 4(3), 193–215.
- Lorenz, E.N. (1963). Deterministic non-periodic flow. *Journal of Atmospheric Sciences*, 20, 130–141.
- Loyd, S. (1914/2007). *Sam Loyd’s Cyclopedia of 5000 Puzzles, Tricks, and Conundrums with Answers*. Ishi Press.
- Marrow, A.J. (1967). Events leading to the establishment of the national training laboratories. *Journal of Applied Behavioral Science*, 3, 145–150.
- Marrow, A.J. (1972). *The Practical Theorist: The Life and Work of Kurt Lewin*. New York: Basic Books.
- Maslow, A.H. (1954). *Motivation and Personality*. New York: HarperCollins.
- Mayo, E. (1949). *Hawthorne and the Western Electric Company: The Social Problems of an Industrial Civilisation*. Oxford: Routledge Books.
- McFarland, G.K., Leonard, H.S., and Morris, M.M. (1984). *Nursing Leadership and Management: Contemporary Strategies*. New York: John Wiley & Sons.
- McLean, G.N. (2005). *Organization Development: Principles, Processes, Performance*. San Francisco: Barrett-Koehler Publishers.

- Miller, D. & Friesen, P. (1984). *Organizations: A Quantum View*. Englewood Cliffs, NJ: Prentice Hall.
- Miller, J. (1955). Toward a general theory for the behavioral sciences. *American Psychologist*, 10, 513–531.
- Nisbet, R.A. (1967). *The Sociological Tradition*. London: Heinemann Educational Books.
- Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, 16(1), 145–179.
- Patton, M.Q. (2002). *Qualitative Research & Evaluation Methods*, 3rd edition. Thousand Oaks, CA: Sage.
- Pfeffer, J. & Salancik, G.R. (1978). *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper and Row.
- Penrose, E. (1952). Biological analogies in the theory of the firm. *American Economic Review*, 42, 804–819.
- Pinker, S. (1997). *How the Mind Works*. New York: Norton.
- Prochaska, J.O. & DiClemente, C.C. (1994). *The Transtheoretical Approach: Crossing Traditional Boundaries of Therapy*. Malabar, FL: Krieger.
- Quinn, J.G. (1980). Managing strategic change. *Sloan Management Review*, 22(4), 3–20.
- Rapoport, A. (1956). The diffusion problem in mass behavior. *General Systems Yearbook*, 1, 6.
- Rock, D. (2009). Your brain at work: strategies for overcoming distraction, regaining focus, and working smarter all day long. New York: Harper Business.
- Rock, D. & Page, L.J. (2009). *Coaching with the Brain in Mind: Foundations for Practice*. New York: John Wiley & Sons.
- Rotman, J. (1994). *An Introduction to the Theory of Groups*. New York: Springer-Verlag.
- Schacter, S., Ellertson, N., McBride, D., & Gregory, D. (1951). An experimental study of cohesiveness and productivity. *Human Relations*, 4, 229–238.
- Schaffer, R.H. & Thompson, H.A. (1992). Successful change programs begin with results. *Harvard Business Review*, 70(1), 80–89.
- Schumpeter, J.A. (1942/1975). *Capitalism, Socialism and Democracy*. New York: Harper and Row.
- Sherer, P. & Lee, K. (2002). Institutional change in large law firms: a resource dependency and institutional perspective. *Academy of Management Journal*, 45(1), 102–119.
- Smith, A. (1776/2003). *The Wealth of Nations*. New York: Bantam Classics.
- Snyder, C.R. & Lopez, S.J. (2001). *Handbook of Positive Psychology*. Oxford, UK: Oxford University Press.
- Spector, B. & Beer, M. (1994). Beyond TQM programmes. *Journal of Organizational Change Management*, 7, 63–70.
- Stacey, R.D. (1992). *Managing the Unknowable: Strategic Boundaries between Order and Chaos in Organizations*. San Francisco: Jossey-Bass.
- Stacey, R.D., Griffin, D., & Shaw, P. (2000). *Complexity and Management: Fad or Radical Challenge to Systems Thinking?* London: Routledge.
- Starbuck, W. (1971). *Organizational Growth and Development*. Harmondsworth, UK: Blackwell.
- Thompson, J.D. (1967). *Organizations in Action*. New York: McGraw-Hill.
- Tushman, M.L. & Romanelli, E. (1985). Organizational evolution: a metamorphosis model of convergence and reorientation. In L. Cummings & B. Staw, editors. *Research in organizational behavior*, vol. 7. Greenwich, CT: JAI Press. pp. 171–222.
- Vaill, P. (1996). *Learning as a Way of Being: Strategies for Survival in a World of Permanent White Water*. San Francisco: Jossey-Bass.
- Van de Van, A. & Poole, M.S. (1995). Explaining development and change in organizations. *Academy of Management Review*, 20(3), 510–540.
- von Bertalanffy, L. (1950). The theory of open systems in physics and biology. *Science*, 111, 23–28.
- von Bertalanffy, L. (1969). *General System Theory*. New York: George Braziller.

- Watzlawick, P., Beavin, J.H., & Jackson, D.D. (1967). *Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies, and Paradoxes*. New York: W.W. Norton & Co.
- Watzlawick, P., Weakland, J.H., & Fisch, R. (1974). *Change: Principles of Problem Formation and Problem Resolution*. New York: W.W. Norton & Co.
- Wheelwright, P. (1959). *Heraclitus*. Princeton, NJ: Princeton University Press.
- Whitehead, A.N. & Russell, B. (1962). *Principia Mathematica*, 2nd edition. London: Cambridge University Press.
- Wilhelm, H. (1960). *Change: Eight Lectures on the I Ching* (trans. C.F. Baynes). New York: Harper Torchbooks.
- Wilson, E.O. (1998). *Consilience: The Unity of Knowledge*. New York: Knopf.

UNCORRECTED PROOFS