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**The Challenge of Human Interdependence:  
Consequences for thinking about the day to day practice of management in  
organizations**

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**Abstract**

*The purpose of this paper is to locate the dominant discourse on organizations and their management in the history of Western thought. Such location highlights the fundamental, taken-for-granted assumptions underlying the dominant discourse. The purpose is also to identify an alternative way of thinking about organizations which derives from different fundamental assumptions. The approach adopted in the paper is to review two fundamentally different approaches in Western thought to understanding the nature of the individual human agent, the organization and the relationship between them. One approach derives from the philosophy of Kant and the other from Hegel. The exploration of different ways of thinking in this paper leads to a major undermining of the dominant discourse and overturns the most widespread prescriptions for strategic management and the management of change. In doing so it has profound significance for the conceptualization of leadership and values in organizations.*

**Key Words:** *interdependent people, autonomous individuals, complexity, systems thinking.*

It is illuminating, I think, to place today's dominant discourse on the practices of day to day management in organizations in the context of the development of Western thought. What this illuminates is the taken-for granted assumptions underlying that discourse. Perhaps the most fundamental of these assumptions has to do with the particular notions of the individual self as agent, the organization, and the relationship between them. Consider briefly how these notions have changed over hundreds of years in the West.

**The modernist position: the autonomous individual**

In the Middle Ages there was no notion of an individual subject as a self, as an autonomous agent, in the modern sense. Instead, the subject was defined in relation to a cosmic order so that persons come most fully to themselves when they are in touch with that cosmic order, in union with God and knowledge takes the form of the exegesis of God's revelation. Individual identity was related to one's position or role within the social hierarchy. The individual subject was thus defined by external authority in relation to an external world and the group or society consisted simply of a given hierarchical order. This notion of individual and society changed dramatically over the roughly three-hundred-year period of the scientific revolution, culminating in the modern notion of the self which was most clearly formulated by the Enlightenment philosophers. By that time, everything about the external world, including God, was open to doubt but one thing was not and that, according to Descartes, was the existence of the individual, doubting self. The subject was no longer defined in relation to external authority but, rather, defined itself.

Instead of immersion in the external world, self consciousness was understood to require withdrawal from the objective world through individual, internal processes of observation and thought. This modern self, now understood, following Leibniz, as a monad cut off from others, is aware of itself, defines itself, through processes of introspection and reason. This implies an atomistic view of society consisting of a collection of autonomous, rational individuals. To know is first to form rational hypotheses about an objective reality on the basis of reductive, mechanistic, linear, efficient causality of the 'if-then' kind, for example, if you double the force applied to an object in a vacuum then it will move twice as far. To know, is secondly, to test the hypotheses against an objective reality. This is a conception of the individual mind as split off from the body, thinking split off from emotion, and of individuals as split off from each other, society and the natural world and it goes hand in hand with the objectification and control of both nature and society. The natural and social worlds, as objects of control, confirm man's self-defining identity and agency. This is the modernist world view.

The German philosopher, Kant (1790), most powerfully articulated this modernist concept of the subject in claiming that humans were autonomous individuals in that each individual has the capacity, through innate powers of reason, to choose for himself his own objectives and devise his own plans to realize them. Change in a person then becomes a rational re-ordering of individual thought processes carried out by the autonomous moral individual. Implicit in this view is a completely different notion of causality to that applied to nature, namely, a rationalist causality. It is then a short step to believe that not only can individuals change and control themselves by design but that they can also change societies and control nature in the same way. The cause of any change is the rational effort of the autonomous moral individual. Kant also argued that when it came to understanding inanimate matter, the mechanistic 'if-the' causality yielded powerful hypotheses but another approach was required to understand organisms in nature. He suggested that it would be more useful to think of organisms *as if* they were systems – the 'as if' is important because he argued that we can never know reality in itself and so cannot say that organisms actually are systems. Kant defined a system as a bounded set of self organizing, interacting parts which produce both themselves and an emergent whole. He argued that the self organizing interaction of the parts constitutes a developmental process in which a mature form of the system is unfolded. What is being unfolded, however, is already enfolded in the system. For example, an acorn already enfolds the mature form of the oak tree which is unfolded in its development from sapling to mature oak tree. This development occurs through the interaction of the parts (roots, trunk, branches, leaves), to produce both the whole system (oak tree) and the parts themselves, where the whole is more than the sum of the parts. In developing the model of a system, Kant was putting forward a concept of causality, which we might call formative cause, in which the parts of a system interact to form that system which then affects them. A system might, in turn, interact with other systems, as a part, to produce a supra system. Systems models, then, posit hierarchies, or levels, of system. Since these system models are unfolding what is already enfolded, they have no internal capacity for producing novelty and so cannot evolve. It is important to note that Kant argued against thinking of human action in terms of either mechanism or of system since both effectively deny the choice upon which individual autonomy depends. Clearly, if one's actions have a deterministic 'if-then' cause there is no choice available. This is true too if a human is thought of as a part of a system because a part only has meaning, as a part, if it fulfils the functioning of the system, not its own ends as an autonomous unit.

However, Kant's strictures have been widely ignored and the notions of efficient and formative causality found in the natural sciences have been imported into the human sciences, initially

anyway, forgetting the ‘as if’ nature of the system construct. This importation became evident during 1930s and 1940s, as a number of scholars worked in related areas, very much in conversation with each other, culminating in the publication of some important publications around 1950 (for example, von Bertalanffy 1968; Wiener, 1948; Ashby, 1952, 1956; Forrester, 1958). The related areas covered systems of control, the development of computer language, the development of a new science of mind in reaction to behaviorism, namely, cognitivism (McCulloch & Pitts, 1943), and the formulation of the sender-receiver model of human communication (Shannon & Weaver, 1949). This systems movement has come to form the foundation of today’s dominant discourse on sociology, psychology and organizational theory, so importing what is essentially the engineer’s notion of control into understanding human activity. The individual mind came to be understood as a rational, autonomous system inside a person which processed information to form mental models and maps, while collectivities of such individuals came to be understood as social systems.

We can see then that the fundamental assumptions underlying the today’s dominant discourse on management and organizations were already clearly in place over two hundred years ago, how they were powerfully expressed in the importation of systemic thinking about human action in the middle of the last century, and how thoroughly modernist they are. Management is about rationally designing and controlling organizations and this involves identifying the efficient and systemic causes of change in organizations to yield the predictions required for leaders and managers, as rational, autonomous individuals, to be ‘in control’.

### **Interdependent people**

However, even two hundred years ago this particular version of modernism was challenged, notably by the German philosopher, Hegel (1807). For him, modes of consciousness, ways of life, were constituted in social activities. For Hegel, the individual was a cultural being, necessarily dependent on others, who only develops a mind and purposes of his own in interaction with others. Hegel argued that society, culture and thus modes of thought and consciousness, all evolved in conflictual interactions between people. Hegel greatly emphasized the social processes of recognition, arguing that a sense of self arose in social processes of mutual recognition. An individual can only recognize him or herself, as a self, in the recognition of those he or she recognizes. In this way of thinking, therefore, we move away from the modern notion of self as the autonomous individual to a notion of interdependent people whose individual selves are constituted in their interaction with each other. From this perspective, individual change cannot be separated from change in the groups to which an individual belongs and vice versa. This way of thinking also indicates a different theory of causality, an essentially paradoxical or dialectical theory, in which change or evolution in individual and social interaction, as continuity and transformation at the same time, is caused by that very interaction itself. Interacting individuals are forming the patterns of their interaction, the social, while at the same time they are being formed as individuals by their patterns of interaction.

Over a century later, the process sociologist, Elias (1991, p62), acknowledged the influence of Hegel in emphasizing the essential interdependence of people. He described the evolution of Western civilization in the following terms:

The network of human activities tends to become increasingly complex, far-flung and closely knit. More and more groups, and with them more and more

individuals, tend to become dependent on each other for their security and for the satisfaction of their needs in ways which, for the greater part, surpass the comprehension of those involved. It is as if first thousands, then millions, then more and more millions walked through this world with their hands and feet chained by invisible ties. No one is in charge. No one stands outside. ... No one can regulate the movement of the whole unless a great part of them are able to understand, to see, as it were, the whole patterns they form together. And they are not able to visualize themselves as part of larger patterns because, being hemmed in and moved uncomprehendingly hither and thither in ways which none of them intended, they cannot help being preoccupied with the urgent, narrow and parochial problems which each of them has to face. .... Thus what is formed of nothing but human beings acts upon each of them, and is experienced by many as an alien external force not unlike the forces of nature. (Elias, 1978, p9)

He argued that what we now call Western civilization is not the result of any kind of calculated long-term planning. Individual people did not form an intention to change civilization and then gradually realize this intention through rational, purposive measures. It is not conceivable that the evolution of society could be planned because that would suppose that “modern” rational, calculating individuals with a degree of self-mastery already existed centuries ago, whereas such individuals did not exist then but were, rather, themselves the products of social evolution. Elias argued that the change in society occurred in an unplanned manner but nevertheless displayed a specific type of order.

It is simple enough: plans and actions, the emotional and rational impulses of individual people, constantly interweave in a friendly or hostile way. *This basic tissue resulting from many single plans and actions of men can give rise to changes and patterns that no individual person has planned or created. From this interdependence of people arise an order sui generis, an order more compelling and stronger than the will and reason of the individual people composing it.* It is the order of interweaving human impulses and strivings, the social order, which determines the course of historical change; it underlies the civilizing process. (Elias, 2000/1939, p366)

Though it is unplanned and not immediately controllable, the overall process of development of a society is not in the least incomprehensible. There are no ‘mysterious’ social forces behind it. It is a question of the consequences flowing from the intermeshing of the actions of numerous people .... As the moves of interdependent players intertwine, no single player nor any group of players acting alone can determine the course of the game no matter how powerful they may be. .... It involves a partly self-regulating change in a partly self-organizing and self-reproducing figuration of interdependent people, whole processes tending in a certain direction. (Elias, 1991 p146-147)

Although it is highly unlikely that Elias was ever aware of the complexity sciences, what he is describing here is what modern natural complexity scientists call self-organisation and emergence (for example, Prigogine, 1997; Kauffman, 1995; Goodwin, 1994). Elias is arguing that individuals and groups are interacting with each other, in their local situations, in intentional, planned ways. However, the widespread, global consequences of the intermeshing of these

intentions and plans cannot be foreseen by any of them – long term global consequences emerge. Elias goes on to explain why long-term consequences cannot be foreseen.

The interplay of the actions, purposes and plans of many people is not itself something intended or planned, and is ultimately immune to planning. .... the autonomy of what a person calls “we” is more powerful than the plans and purposes of an individual “I”. (Elias, 1991, p62)

Here Elias is pointing to the important fact that individuals pursuing their plans are always in relationship with each other in a group or power figuration. While individuals can plan their own actions, they cannot plan the actions of others and so cannot plan the interplay of plans and actions. The fact that each person depends on others means that none can simply realize their plans. However, this does not mean that anarchy, or disorder, results. Elias talks about a trend or direction in the evolution of the consequences of the interplay of individual plans and intentions. In other words, he is talking about self-organization and emergence and this immediately suggests to me the potential for greater insight into the process that may be found in the complexity sciences, which are concerned with the same kind of process.

What Elias is saying departs very clearly from the assumptions underlying the dominant of discourse on management and organizations today. It emphasizes “we” rather than “I”, or individual agency, and points to the difficulty we have in thinking about interdependence. It is far easier to think in the apparently rational mode of the modern dominant discourse. But is this thinking as rational as we assume? Consider what Elias has to say about our modes of thinking.

### **Modes of thought**

In his essay on involvement and detachment, Elias (1987) distinguishes between two modes of thinking. As an example of the first mode, which he refers to as involved thinking, he describes the way people in the West thought about nature in the pre-scientific age. People experienced nature as rather mysterious forces acting upon them, often with great violence, which they found very difficult to understand, let alone control. When people find themselves in such situations they become anxious and this arouses high levels of emotion, creating a vicious circle in which it becomes harder and harder to formulate explanations of what is happening to them. They become deeply involved in the experience finding it harder and harder to stand back and reflect in a ‘reality congruent’ fashion. The anxiety is dealt with, to some extent, by developing what Elias calls ‘magico-mythic’ explanations according to which nature is understood either in terms of impersonal forces acting upon them in a way that they cannot control or as personalized gods and spirits also beyond human control. Such explanations call forth responses of acceptance, submission and conformity.

The second mode of thinking, which Elias calls detached thinking, is exemplified by the scientific method. By overcoming fear of the unknown, the scientific method enables people to stand back and reflect on nature in a way that is more ‘reality congruent’. By taking the position of the objective observer, they feel less involved in their experiences with nature, less emotional and more rational. The result is a virtuous circle in which levels of anxiety diminish so enabling a more detached attitude leading to greater control over nature and so even further decline in levels of anxiety.

Even in relation to nature, Elias argues that humans never display pure forms of either detached or involved thinking. Thinking is thus always paradoxically involved and detached at the same time; thinking rationally always also involves emotion at the same time. However, the paradox of involvement and detachment is transformed as ways of thinking that differ from one situation to another. In some situations, the aspect of involvement is more apparent while in other it is the aspect of detachment that is more apparent. This leads then to how we might characterize thinking in the social sciences. Here, Elias argues that it is much harder to think in ways that are more detached because in the social sciences the phenomena we are concerned with are ourselves. Elias appeals to us to face up to the fact that we do not have 'reality congruent' ways of thinking about social phenomena such as organizations. He ascribes this to a basic fact to be found in all human experience namely that we depend upon each other. None of us can survive on our own, indeed, there is hardly anything that any of us can do on our own. What each of us does affects others and what they do affects each of us. We inevitably both constrain and enable each other. So, each of us is continually forming intentions and making choices of our next action but because we are interdependent none of us can control the consequences of what we do. The consequences emerge in the interplay of all our intentions and those consequences prompt further action on the part of all of us, the consequences of which will also emerge, and so on in a process that has no beginning or end.

This experience of the social nowadays is thus similar to the experience people long ago had in their encounter with nature and the same kind of anxiety is therefore aroused. This makes it very difficult to adopt detached thinking and so the paradox of detached involvement tends to be transformed as 'magico-mythic' thinking. People come to talk about social forces acting on them and organizations as 'thing' that exists outside their interaction. As an example of this 'magico-mythic' thinking, Elias refers to the way in which social scientists talk about societies, institutions and organizations as 'wholes' or 'systems', which he says is the creation of a mystery in order to solve a mystery. What he calls for to generate an alternative, more detached mode of thought, is a focus on the actual processes of our interdependence.

It seems to me that mainstream organizational and management literature, the Business Schools and the management and leadership development programs of major organizations are all, for the most part, promoting what Elias has called magico-mythic thinking. However, the magico-mythic nature of our explanations of organizational life is covered over by the rational sounding language in which they are presented. They promote the illusion of control so providing social defenses against anxiety but in the process distancing us from our actual experience and making rationally invisible what we actually do in organizations. It seems to me that a great many of the explanations of, and prescriptions for, acting in organizations today amount to the construction of a fantasy world so that we can preserve the illusion that some one is in control.

### **What is practical?**

Managers are always calling for practical 'tools' and techniques so that they can achieve success. What they accept as 'tools' is usually a list of actions or behaviors, for example, the seven habits of effective people, and the ubiquitous two by two matrix. For example, such a tool could take the form of a diagram with some variable said to cause the organization's culture, say, X, measured on the vertical axis and another cause, say, Y, on the horizontal axis. Four possible ways of combining these variables are depicted to yield four different categories of culture. Managers are then supposed to answer a questionnaire to locate their organization's culture and

then decide whether they need to move to a better culture and if they do to make the move by operating on variables X and Y. I find it astonishing that anyone believes that this is remotely possible, let alone practical. What is happening when people talk like this is a taken-for-granted process of reifying the organization. It feels natural to think that the organization actually exists as a thing which can be moved around. Not only do people tend to reify organizations, they quite easily slip into anthropomorphizing them. Not only is the organization a thing, it is also a kind of person with a purpose and a direction of its own, both of which can be chosen by its most powerful members. It is now not uncommon for people to talk about an organization as a living thing, a living system just like the systems in nature. It is then a short step to call for a return to ancient wisdom when thinking about organizations so as to find a simpler way more connected to nature. Calls are made for the re-sacralization of nature and of work. Leaders are called upon to form inspiring visions and convert others to them. All should follow a mission. What we see here is a progressive move to highly involved, magico-mythical thinking about organizations, highly reminiscent of how people used to think about nature. What is striking in the dominant management discourse is the absence of ordinary people as organizations are understood as positions in markets, bundles of resources, abstract cultures and charismatic, leaders with extraordinary powers of envisioning.

What I think is required to move away from this magico-mythical thinking, dressed up in rational sounding jargon, is an approach to thinking about our lives in organizations in a way that involves taking our ordinary, everyday experience seriously. Taking seriously one's experience of what one is actually doing in local interactions with others, taking seriously our interdependence, leads to very different views of what is practical. Taking this route we come to see that there are no mysterious social forces acting upon us, no abstract cultures that visionary leaders can move around at will. Instead we see how we are taking up global patterns in our local interactions, so reproducing and potentially transforming those global patterns. This call to focus on experience should not be mistaken for some utopian ideal for a 'return' to some primal harmony. By experience I mean the actual experience of interaction in which we express hatred, aggression, greed as well as love, compassion and care.

This is what colleagues and I are trying to do in developing a perspective on organizations which we call complex responsive processes of relating (Stacey, Griffin & Shaw, 2000; Stacey, 2001; Griffin, 2001; Streatfield 2001; Fonseca, 2001; Shaw, 2002).

### **The perspective of complex responsive processes**

From the perspective of complex responsive processes, organizations are thought of as patterns of interaction between people that are iterated in each present. Instead of abstracting from the experience of human bodily interaction, which is what we do when we posit that individuals create a system in their interaction, the perspective of complex responsive processes stays with the experience of interaction which produces nothing but further interaction. In other words, one moves from thinking in terms of a spatial metaphor, to a temporal processes way of thinking, where the temporal processes are those of human relating. Organizations are then understood as processes of human relating and it is in the simultaneously cooperative-consensual and conflictual-competitive relating between people that they perpetually construct their future together in the present. Complex responsive processes of relating can be understood as acts of communication, relations of power, and the interplay between peoples' choices arising in acts of evaluation.

It is because human agents are conscious and self-conscious that they are able to cooperate and reach consensus, while at the same time conflict and compete with each other, in the highly sophisticated ways in which they do. Drawing on the work of the American pragmatist, George Herbert Mead (1934), one can understand consciousness as arising in the communicative interaction between human bodies. Humans have evolved central nervous systems such that when one gestures to another, particularly in the form of vocal gesture or language, one evokes in one's own body responses to one's gesture that are similar to those evoked in other bodies. In other words, in their acting, humans take the attitude, the tendency to act, of the other and it is because they have this capacity that humans can know what they are doing. It immediately follows that consciousness (knowing, mind) is a social process in which meaning emerges in the social act of gesture-response, where the gesture can never be separated from the response. Meaning does not lie in the gesture, the word, alone but only in the gesture taken together with the response to it. Furthermore, in communicating with each other as the basis of everything they do, people do not simply take the attitude of the specific others with whom they are relating. Humans have the capacity for generalizing so that when they act they always take up the attitude of what Mead called the generalized other. In other words, they always take the attitude of the group or society to their actions – they are concerned about what others might think of what they do or say. This is often unconscious and it is, of course, a powerful form of social control. Communication, then, is not simply the sending of a signal to be received by another, but rather complex social, that is, responsive, processes of self formation in which meaning and the society-wide pattern of the social object emerge.

Drawing on the work of Elias, one understands how the processes of communicative interacting constitute relations of power. For Elias, power is not something anyone possesses but is rather a characteristic of all human relating. In order to form, and stay in, a relationship with someone else, one cannot do whatever one wants. As soon as we enter into relationships we constrain and are constrained by others and, of course, we also enable and are enabled by others. Power is this enabling-constraining relationship where the power balance is tilted in favor of some and against others depending on the relative need they have for each other. Elias showed how such power relationships form figurations, or groupings, in which some are included and others are excluded and where the power balance is tilted in favor of some groupings and against others. These groupings establish powerful feelings of belonging which constitute each individual's "we" identity. These "we" identities, derived from the groups we belong to, are inseparable from each of our 'I' identities. As with Mead, then, we can see that processes of human relating form and are formed by individual and collective identities, which inevitably reflect complex patterns of power relating.

In their communicative interacting and power relating, humans are always making choices between one action and another. The choices may be made on the basis of conscious desires and intentions, or unconscious desires and choices, for example, those that are habitual, impulsive, obsessive, compulsive compelling or inspiring. In other words, human action is always evaluative, sometimes consciously and at other times unconsciously. The criteria for evaluating these choices are values and norms, together constituting ideology.

In describing the fundamental aspects of the complex responsive processes of human relating, I have referred on a number of occasions to *patterns* of communicative interaction and *figurations* of power relations. These patterns and figurations can be understood as themes, taking both propositional and narrative forms, which emerge and re-emerge in the iteration in each

succeeding present of the interactive processes of communication, power and evaluation. These themes organize the experience of being together.

By analogy with complex adaptive systems (Goodwin, 1994; Kauffman, 1995; Waldrop, 1992), the thematic patterning of interaction is understood to be:

- *Complex*. Complexity here refers to a particular dynamic or movement in time that is paradoxically stable and unstable, predictable and unpredictable, known and unknown, certain and uncertain, all at the same time. Complexity and uncertainty are both often used to refer to the situation or environment in which humans must act and this is distinguished from simple or certain environments. Prescriptions for effective action are then related to, held to be contingent upon, the type of environment. However, from the complex responsive processes perspective it is human relating itself which is complex and uncertain.
- *Self-organizing and emergent*. Self-organizing means that agents interact with each other on the basis of their own local organizing principles, and it is in such local interaction that widespread, coherence emerges without any program plan or blueprint for that widespread pattern itself.
- *Evolving*. The generalizations people take up in their interactions have to be particularized specific situations and that inevitably means some form of conflict. The generalizations will never be particularized in exactly the same way and the nonlinear nature of human interaction means that these small differences could be amplified into completely different generalizations. In this way, patterns of interaction evolve.

I think this perspective creates a very different research agenda for day to day management in organizations which focuses on patterns of social relations and their key aspects of communication power and evaluative choice. Examples of such research are presented in a Series of books edited by Stacey, Griffin and Shaw called *Complexity as the Experience of Organizing* (Stacey & Griffin, 2005a; Griffin & Stacey, 2005; Stacey, R., 2005; Stacey & Griffin, 2006).

## **Conclusion**

The dominant discourse on organizations and their management is built on a myth conveyed in most of the literature and perpetuated by the management speak engaged in by leaders and managers in organizations. The myth is that organizations can be, and most effectively are, managed and led predominately on the basis of instrumental rationality which produces organizational movement according to designs formulated before any action. It is taken-for-granted that change can and must be designed for the whole organization and it is ultimately the responsibility of leaders to do this. However, there is no persuasive evidence that organizations do change, succeed and fail because of the designs prepared and enunciated by their leaders or anyone else. Most studies point to how often the grand design has no effects or is simply disruptive. Despite this lack of evidence, the myth continues and has now been imported wholesale into modes of public sector governance. Dominant ways of thinking are not fit for purpose and cover over how things actually get done. In our experience, change emerges in predominantly unpredictable ways. Such unpredictable changes in global patterns of interaction emerge in myriad local interactions. It is impossible to design the whole or changes in it. What becomes important from this perspective is the ongoing, ordinary everyday local interactions,

particularly the communicative interacting of ordinary conversation in which power relations are formed and are sustain by ideology or changed. The role of leader is to participate actively in local interactions to widen and deepen communication. Many however prefer the myth of the hero who can change the whole to the ordinary activity of real leaders who work with others to co-create the perpetually constructed future of an organization.

## References

- Ashby, W. R. (1952) *Design for a Brain*, New York: Wiley.
- Ashby, W. R. (1956) *Introduction to Cybernetics*, New York: Wiley.
- Elias, N. ([2000]/1939), *The Civilizing Process*, Blackwell, Oxford.
- Elias, N. ([1978]/1970) *What is Sociology?*, Oxford: Blackwell
- Elias, N. (1991) *The Society of Individuals*, Oxford: Blackwell
- Forrester, J (1958) 'Industrial Dynamics: A Major Breakthrough for Decision-Making', *Harvard Business Review* 36, 4: 37-66.
- Fonseca, J (2001), *Innovation in Organizations*, London: Routledge.
- Goodwin, B. (1994), *How the Leopard Changed its Spots*, London: Weidenfeld & Nicolson.
- Griffin, D. (2002) *The Emergence of Leadership: linking self-organization and ethics*, London: Routledge.
- Griffin, D. & Stacey, R. (2005) *Complexity and the Experience of Leading Organizations*, London: Routledge.
- Hegel, G.W.F. (1807) *The Phenomenology of the Spirit*, Bamberg: Joseph Anton Goebhardt. Translated by A. V. Miller, Oxford: Oxford University Press.
- Kant, I. (1790) *Critique of Judgement*, trans. W. S. Pluhar, Indianapolis: Hackett (1987).
- McCulloch W. S. & Pitts, W. (1943) 'A logical calculus of ideas imminent in nervous activity', *Bulletin of Mathematical Biophysics*, vol. 5.
- Mead, G.H. (1934) *Mind, Self and Society*. Chicago: Chicago University Press.
- Kauffman, S. A. (1995), *At Home in the Universe*, New York: Oxford University Press.
- Prigogine, I. (1997) *The End of Certainty: Time, chaos and the new laws of nature*, New York: The Free Press.

- Shannon, C. E., & Weaver, W. (1949) *The mathematical theory of communication*, Chicago ILL: University of Chicago Press.
- Shaw, P. (2002) *Changing the Conversation: Organizational change from a complexity perspective*, London: Routledge.
- Stacey, R., Griffin & Shaw (2000) *Complexity and Management: Fad or radical challenge to systems thinking?* London: Routledge.
- Stacey, R. (2001) *Complex Responsive Processes in Organizations: Learning and knowledge creation*, London: Routledge.
- Stacey, R. (2005) *Emergence in Organizations: local interaction and the emergence of global pattern*, London: Routledge
- Stacey, R. & Griffin, D. (2005a) *Taking Experience Seriously: a complexity perspective on researching organizations*, London: Routledge.
- Stacey, R. & Griffin, D. (2006) *Complexity and the Experience of Managing in Public Sector Organizations*, London: Routledge
- Streatfield, P (2002) *The Paradox of Control in Organizations*, London Routledge.
- von Bertalanffy, L. (1968) *General Systems Theory: Foundations, Development, Applications*, New York: George Braziller.
- Waldrop, M. M. (1992), *Complexity: The Emerging Science at the Edge of Chaos*, Englewood Cliffs, NJ: Simon & Schuster.
- Wiener, N. (1948) *Cybernetics: or Control and Communication in the Animal and the Machine*, Cambridge, MA: MIT Press.