



## Zen and the creative management of dilemmas

Albert Low & Ronald Purser

To cite this article: Albert Low & Ronald Purser (2012) Zen and the creative management of dilemmas, Journal of Management, Spirituality & Religion, 9:4, 335-355, DOI: [10.1080/14766086.2012.744543](https://doi.org/10.1080/14766086.2012.744543)

To link to this article: <http://dx.doi.org/10.1080/14766086.2012.744543>



Published online: 29 Nov 2012.



Submit your article to this journal [↗](#)



Article views: 213



View related articles [↗](#)

## Zen and the creative management of dilemmas

Albert Low<sup>a</sup> and Ronald Purser<sup>b\*</sup>

<sup>a</sup>*Montreal Zen Center, Montreal, Canada;* <sup>b</sup>*Department of Management, San Francisco State University, San Francisco, CA, USA*

The management of dilemmas can be enhanced by learning from Zen Buddhism, particularly the meditative practice of working on koans. Zen koans are the recorded sayings, teachings, and encounter dialogs between Buddhist masters and students. The paper begins by first examining the nature of dilemmas and how various modes of thinking differ in their effectiveness in achieving a creative reconciliation. Next, Zen koan practice is explored as a means of providing insights into the human capacities required to perceive and resolve organizational dilemmas. The state of the mind required to resolve Zen koans is only different in degree from the mental capacities managers need to develop for reconciling organizational dilemmas. Next, the capacities of mind required to reconcile dilemmas is examined, which involves a new logic of ambiguity that is the basis of creative insight. Finally, the Zen koan pedagogy and Zen training are discussed in terms of its implications for research and management education.

**Keywords:** Buddhism; Zen; koans; dilemmas; paradox; creativity

Organizational effectiveness involves the managerial capacity to creatively respond to dilemmas (Baden-Fuller and Volberda 1997, Low 2008a). Various organizational theorists have noted how managerial work is fraught with the necessity to manage competing values, polarities, and dilemmas (Handy 1994, Johnson 1996, Quinn 1988, Cameron and Quinn 1988, 1999, Eisenhardt 2000, Trompenaars and Hampden-Turner 2002, Martin 2007). Managerial work is often characterized as being highly ambiguous, uncertain, and complex, which can be stressful and anxiety-provoking (Kahn *et al.* 1964). According to Pascale (1991), the capacity to “manage contention” differentiated companies that were able to maintain their “excellence” ratings over time. Similarly, Collins and Porras (2001) identified companies that outperformed the stock market for the period from 1926 to 1990 by a factor of 15. These companies were able to tap into what they described as “the genius of the AND”. Hampden-Turner and Trompenaars (2000) have shown effective management of dilemmas is key to value creation and bottom line performance.

---

\*Corresponding author. Email: [rpurser@sfsu.edu](mailto:rpurser@sfsu.edu)

In this paper, it is proposed that the management of dilemmas can be enhanced by learning from Zen Buddhism, particularly the practice of koan-study that figures prominently in this tradition. The mode of contemplative insight cultivated by koan-study is relevant to management theory; creative reconciliation of dilemmas involves a form of cognition that transcends “either/or” thinking and binary logic. The paper begins by first examining the nature of dilemmas and how various modes of thinking differ in their effectiveness in achieving a creative reconciliation. Next, Zen koan practice is explored as a means to provide insights into the human capacities required to perceive and resolve organizational dilemmas. The koan (*kung-an* in Chinese) emerged from the Ch’an Buddhist tradition in China. Often translated as “public cases”, koans are the recorded sayings, teachings, and encounter dialogs between Ch’an Buddhist masters and students. “You know the sound of two hands clapping, what is the sound of one hand clapping?” This is a Rinzai Zen Buddhist koan, and so well known that it is now part of our culture. Koans are used to focus the mind on the contradictory realities, dilemmas, and paradoxes of life. D.T. Suzuki (1957), a noted scholar whose works first made Zen Buddhist philosophy accessible to the West, states: “The Zen method of discipline generally consists in putting one in a dilemma, out of which one must contrive to escape, not through logic indeed, but through a mind of higher order”. We propose that state of the mind required to resolve Zen koans is only different in degree from the mental capacities that managers need to develop for reconciling organizational dilemmas. Next, the capacities of mind required to reconcile dilemmas involving a new logic of ambiguity is explored as the basis of creative insight. Finally, the Zen koan pedagogy and Zen training are explored in terms of their implications for research and management education.

### **The nature of dilemmas**

Dilemmas differ in nature from problems. Problems have logical solutions, requiring a clear choice between alternatives. Further, problems may have a single correct answer, or two or more right answers that are independent (Johnson 1996). The mode of thinking applied to problem solving is based on Aristotelian logic, often referred to as “either/or” thinking. Cognitive problem-solving skills are mainly analytical, linear, and rational in nature, with an aim towards converging upon a single, correct solution. In contrast, dilemmas call forth problem-finding skills. Obscure, complex, and ambiguous situations require problem-finding skills. Problem finding is a perceptual skill; managers must actively search to discover and make sense of what the problems actually are.

Seet (2007) defines a dilemma as two propositions that are either opposed or are in conflict with each other. Similarly, Johnson (1996) maintains that polarities have two or more right answers that are interdependent. Johnson argues that polarities, unlike problems, are ongoing and can only be managed, not solved once and for all. Seet (2007) also notes dilemmas have much in

common with paradoxes. Webster's Dictionary defines paradox as: "a statement or proposition seemingly self-contradictory or absurd, and yet explicable as expressing a truth". Paradoxes are statements or situations that are contrary to, or in conflict with, conventional or common opinion. A paradox can also be a statement or proposition that contradicts itself, making it seem difficult or impossible to understand. Most paradoxes often contain two opposite facts or characteristics (Seet 2007, p. 3). Cameron and Quinn (1988, p. 10) note that a paradox, "embraces clashing ideas" and that they, "... involve contradictory, mutually exclusive elements that are present and operate equally at the same time".

Low (2008a) distinguishes dilemmas as situations in which a single idea is called upon to resolve two incompatible or contradictory frames of reference. The common elements associated with dilemmas, polarities, and paradoxes are: (1) two opposing ideas, things, or values; (2) a corresponding difficulty in understanding or choice that is a result of this opposition. In this respect, dilemmas often produce conflict, given the tension that is generated between opposing ideas or values.

### **Thinking processes and logics**

Seet (2007) has described three distinct thinking processes that have relevance to responding to problems vs. dilemmas, namely (1) "either/or" thinking, (2) "both/and" thinking, and (3) "through-through" or "parallel" thinking.

#### ***"Either/Or" thinking***

"Either/or" thinking is based on Aristotelian logic, otherwise known as classical logic. This mode of thinking has three basic principles:  $x$  is  $x$ ,  $x$  is  $A$  or not  $A$ , and  $x$  cannot be both  $A$  and not  $A$ . Classical logic seems so self-evident that one might wonder how it could ever be challenged. "Either/or" thinking is at the root of dualistic perception. The basic principle of classical logic is also the principle of identity,  $A$  is  $A$ : a republican is a republican and not a democrat, managers are managers and not employees, right or wrong, one thing or the other, but not both.

"Either/or" thinking could also be thought of as "on/off" thinking. In computer science, this is known as binary logic. Binary logic is the logic of incompatibility. Either something is the case or it is not; there is no room for ambiguity. With "either/or", "on/off" thinking, everything is either one thing or another, either black or white, either right or wrong, male or female, young or old, possible or not possible, and so on. Tulku (1987) refers to this mode of thinking as "technological knowing", which has come to have an enormous influence upon our lives. With this mode of thinking, there is only one correct way to think and other ways are wrong, or at least inferior. Excessive or inappropriate application of "either/or" thinking can lead to the perception of polarization (Hampden-Turner, 1971). With "either/or" thinking, contradictory or

incompatible frames of reference cannot be creatively combined to form a novel synthesis; opposing ideas are seen as incommensurable and irreconcilable.

### ***“Both/and” thinking***

A second mode of thinking Seet (2007) has described is that of “and–and” or “both/and” thinking. This mode of thinking allows for seeing both sides of a dilemma being simultaneously true. As Seet (2007) points out, in environments with a surplus of resources, “both/and” thinking will attempt to optimize both sides of a dilemma simultaneously with the goal of deriving mutual benefits or reaping the “best of both worlds”. However, in resource-constrained environments, “both/and” thinking manifests more as a form of compromise or a partial mixing from both sides of an opposition. This mode of thinking usually results in managing trade-offs between competing values or approaches.

Roger Martin, Dean of the Rotman School of Management at the University of Toronto, has coined the term “integrative thinking”, which resonates with the notion that the management of dilemmas demands an altogether different mode of thinking (Martin 2007). Integrative thinking is based on the

ability to constructively face the tensions of opposing models, and instead of choosing one at the expense of the other, generating a creative resolution of the tension in the form of a new model that contains elements of the individual models, but is superior to each. (Martin 2010)

Martin (2009) also refers to this as the “opposable mind”, which is strikingly similar to Arthur Koestler’s notion of “bi-sociation”. Koestler (1964) noted that when a singular idea or solution is perceived from “two self consistent but habitually incompatible frames of reference”, a creative breakthrough can occur. Koestler’s conditions of creativity, therefore, have two parts: a single, unifying idea, and at least two conflicting frames of reference.

Creative resolution of a dilemma involves a mode of thinking which is able to perceive, hold, and ultimately reconcile two incompatible frames of reference. When describing the creative tension involved in bi-sociative thinking processes, Koestler uses words such as: “clash”, “explosion”, “collision”, and “confrontation” – words that can just as well, indeed often do, describe conflict. Bi-sociation is very similar to “Janusian thinking”, based on the image of the two-faced Roman God Janus. Janusian thinking conceives opposites or antitheses simultaneously, as coexisting side by side, or in the same mental space (Rothenberg 1990). Many scientists, poets, and artists are able to produce novel and original products through Janusian thinking by holding opposites in their mind during the creative process. Fletcher and Olwyler (1997) describe “paradoxical thinking” as the process of bringing together what appear to be seemingly contradictory, or impossible combinations of ideas or actions within oneself. The seeming impossibility of understanding the

meaning of a paradox is a function of how it is perceived; a limited frame of reference can prevent or inhibit a creative resolution to a dilemma (Barrett 1998). Smith and Berg (1987, p. 9) note that a common thread through such terms as paradox, tension, and ambivalence is a “struggle with opposites, especially the attempt to create meaning and coherence out of what seems to lack them”.

***“Through/through” thinking***

According to Trompenaars and Hampden-Turner (2002), a new mode of thinking, which they claim is much more effective for the management of dilemmas, is “through–through” thinking. This mode of thinking is capable of reconciling discordant values into a novel and coherent unity. “Through–through” thinking is a dynamic, dialectical, and cyclical process, which can be visually represented as a helix-like pattern over time (Hampden-Turner 1971, Hampden-Turner and Trompenaars 2000). Reconciling value dilemmas is a key leadership competence that is correlated with value creation (Trompenaars and Hampden-Turner 2002). It is the capacity to synthesize or reconcile both “horns” of a dilemma that leads to novel value creation. Bateson referred to this as analog thinking, which is based on a “logic of ambiguity” (Low 2002), or the principle of “more/less” and “both/and” thinking.

The logic associated with these three thinking processes is summarized below in Table 1.

With a dilemma, there are at least two, although sometimes more, ways of acting in response to a situation. Only one can be chosen and acted upon at any given moment – although both are equally good or desirable, or both equally bad and undesirable. In other words, at some particular time, to do the right thing is to do the wrong thing, which is to reject the right thing. With a dilemma, one cannot say yes or no, because both are right, or both are wrong. However, when one is faced by a dilemma, one must respond. Not to respond is itself a response. One must find an answer; one must make a decision. One cannot say either yes or no, but one must say either yes or No. A baffling characteristic of all dilemmas is the pressure to satisfy the demands of both horns – the classic double bind. More often than not, managers tend to satisfy the demands of one polarity, in effect, rejecting the opposed polarity at their peril.

A manager is confronted with constant dilemmas, and these contribute to the burdens and stresses of management. While compromise is a way to maintain unity or harmony, both YES and NO are equally diminished in some way. Compromise can oscillate between the two alternatives (both/and) arriving at

Table 1. Logics of thinking processes.

Dilemma	Both YES and NO but either YES or NO
Compromise	Both YES and NO
Logical or on/off thinking	YES or NO

mid way between two extremes. Many managers may partially be aware that they are facing a dilemma and want the best of both worlds. But, since they are unwilling to relinquish either horn and unable to realize both, they end up with neither. We often refer to such behavior as incompetence. “On/off” thinking demands either a “yes” or “no” response; it is appropriate for technical problem-solving, but is ineffective and even disastrous if applied to situations that are in actuality dilemmas and not problems.

### *The limits of analytical thinking: towards a logic of ambiguity*

A large portion of management education is based upon the assumption that a manager is called upon to solve problems. What has been suggested thus far is that the management of dilemmas requires a completely different mode of thinking and logic than is customarily taught in business schools. For example, management education has heavily relied upon the “case-study” method as a pedagogical tool. Yet, organizational dilemmas require a creative, timely, and embodied response to the situation at hand. The analytical and detached case-study method is limited in fostering the managerial thinking capacities necessary for creative resolution of dilemmas. Reflecting on the limitations of the management education pedagogy, Mintzberg notes:

The most obvious example, I think, of where it goes wrong is in the case-study method: give me 20 pages and an evening to think about it and I’ll give you the decision tomorrow morning. It trains people to provide the most superficial response to problems, over and over again getting the data in a nice, neat, packaged form and then making decisions on that basis. It encourages managers to be disconnected from the people they’re managing. (Mintzberg 2001)

A Zen Buddhist-inspired organizational dilemma theory, based on understanding the role koan practice plays in this spiritual tradition, can shed light on the managerial capacities required to deal effectively with dilemmas. A dilemma can be viewed as any situation in which a single idea is called upon to resolve two incompatible frames of reference. The conditions for creative insight, therefore, have two parts: a single, unifying idea and at least two conflicting frames of reference, although more than two may be involved.

Koans are also teaching “cases” and pedagogical devices, but their utilization in Zen Buddhism is for the purpose of bringing the student to a fully awakened awareness of dynamic unity. The single idea which achieves reconciliation of a dilemma is itself a manifestation of the drive to unity. Indeed, dilemmas arise out of a basic and fundamental ambiguity at the core of human being. Human perception is both subjective and objective, we can be both participants and observers, and at the center and periphery, simultaneously. It is this basic ambiguity that is the basis for all spiritual practices which represent a drive toward unity, or wholeness.

Zen koan practice engages a different way of knowing, driven by this basic drive toward unity. This mode of knowing is based on the “logic of ambiguity”

(Low 1976, 2002, 2008a, 2008b). The logic of ambiguity, which is the basis of creative insight, transcends the exclusive middle of classical logic. If A and B are the incompatible frames of reference, then classical logic says one must choose either A or B; on the other hand, creativity goes beyond both A and B. According to the logic of ambiguity, if we have two, contradictory situations, and which added together do not make the complete situation, then we can infer that the complete situation is a unity that lies “beyond” the two. This unity is neither one nor the other, nor both, nor not both.

### ***The historical context of Ch’an Buddhism***

Before exploring the function and relevance of koans, it is important to understand the historical context in which the Ch’an (Zen in Japan) school of Buddhism emerged in China. Chinese culture and tradition, and early Chinese Buddhism in particular, placed a great deal of emphasis on the written word and self-cultivation through the study of traditional texts (Hershock 2005). Studying texts and religious doctrines was the means by which the authority of tradition was upheld and sustained. Ch’an Buddhism broke with this tradition by positioning itself as being “a special transmission outside of written teachings”, and as “not being dependent on words and letters”. Ch’an Buddhist masters took a completely different turn from that of their historical predecessors, the Indian pundits, who were known for their abilities to elucidate or expound upon the volumes of Buddhist texts and sutras. In Ch’an Buddhism, spiritual authority and opportunities for realization were no longer limited to scholastic monks, the aristocratic and the literate.

As a countercultural movement within Chinese religious society, Ch’an not only broke away from the textual tradition, but also reframed spiritual realization as enlightened activity in the lived world. This amounted to a paradigmatic shift from the academic to the pragmatic. Spiritual attainment in Ch’an Buddhism needed to be demonstrated by a virtuosic responsiveness or conduct. In this respect, enlightened activity in Ch’an is regarded as embodied in exemplary conduct and demonstrative activity occurring within a social environment. Enlightened conduct depicts Ch’an masters as improvisational geniuses who exhibited and demonstrated their qualitatively dramatic presence, an immediate and unprecedented ability to respond in situationally appropriate ways. In Zen, such masters are often depicted as eccentric, irreverent, and iconoclastically rebellious. Contrary to conventional wisdom, the practice of Zen Buddhism, especially koan study, is a highly social affair that demands an unprecedented response and social demonstration of one’s realization. Noting the sociality of Ch’an Buddhist enlightenment, Hershock (1996, pp. 63–64) states:

... enlightenment most frequently manifests not while sitting alone in the forest or meditation hall, but while conversing – in the interview room, in front of the assembly in the dharma hall, in the kitchen, on the dirt path leading to a monas-



tery's fields – anywhere that master and student enter unpredictable and lively relation with one another. ... This differs markedly from the traditional narratives surrounding the Buddha's enlightenment – a narrative which accords rather well with the Indian disposition for seeing spiritual attainment as a concomitant (if not a result in part) of withdrawing from social interactions.

The intense focus on the teacher-student relationship in Ch'an Buddhism, along with the importance of the sangha, or community of practitioners – highlights the emphasis that was placed on engagement, dialog and the skillful means for resolving existential dilemmas.

### **Koan practice as pedagogy in Zen Buddhism**

Ninth century Ch'an Buddhist master Lin Chi (Rinzai in Japanese) is credited with inventing the koan method of practice. The Rinzai school of Zen still continues to this day. While Ch'an Buddhism did not follow the textual tradition, its deeply Chinese cultural heritage valued recording history, compiling accounts of significant events, and documenting stories. This propensity for recording historical encounters of sudden awakening found its way into Ch'an Buddhism in the form of "public cases", or koans. The terminology is derived from the Chinese legal vocabulary, indicating that the Chinese also kept meticulous records of past court cases to document cultural precedents. Koan record collections were first formally preserved from the eleventh through the fourteenth centuries (Heine 2003). Koan study provided students a way of recollecting and dwelling on public cases of previous masters in their encounters with students and other teachers, particularly the critical moment or turning point upon which the case pivots.

One could say that Rinzai Zen invented the case method, long before the Harvard Law and Business Schools came into being. Indeed, koans have a functional similarity to court cases. Just as the law student or judge will consult a previous legal case in order to develop an appreciation of the complexities of the issues at hand, so does the Zen student immerse himself in a koan in order to dive into the tensions and uncertainties of his own existential dilemmas. Noting this similarity, Batchelor (1990, p. 51) states:

The account of a previous court case will never exactly duplicate the details of the one at hand. It is incapable of providing a ready-made solution that can just be transferred to a present case. All it can offer is an orientation, an example, a sense of direction. Likewise, the unique circumstances of an awakening related in the Zen records will never be repeated. These cases do not offer an answer to our own current existential predicament; they can only provide an indication of the way ahead.

A key difference, however, between these cases is that the Zen koan is used to induce a state of contemplation that focuses all of the student's mental and physical resources on questioning and inquiry in order to arrive at a sudden

insight and awakening (Kapleau 1966; Low 1984; Shrobe 2010, Suzuki 1994). It is a misnomer to consider the Zen koan as a mere riddle, puzzle or conundrum. As Philip Kapleau, the author of *Three Pillars of Zen*, points out,

Koans are not intellectual puzzles or conundrums, nor are they tricky and clever; rather, they are direct and profound ... To realize the essence of a koan is to realize the primal condition of one's own mind – a state of awareness, freedom, wisdom, and compassion. (Kapleau 2001, p. 2)

Aitken (1991) another contemporary Zen teacher said that koans are “the clearest possible expression of perennial facts which students grasp with focused meditation and guidance.” Roshi Maezumi considered koans to be designed to prod the mind into intuitive insight. He also said that they record an instance in which a key issue of practice and realization is presented and examined by experience rather than by discursive or linear logic. For Cleary (1979), koans are “mental exercises for the realization of [spiritual] experiences and their ultimate integration and mature development in complete consciousness”. Hoffman noted that koans are designed to break down ordinary rationality.

Zen has often been misunderstood and characterized as being anti-intellectual and that koans are a kind of nonsense designed simply to reject logical thought. On the contrary, koan practice is aimed at accessing successively deeper levels of mind in order to see directly into the primordial unity that underlies all opposites, fundamental inner conflicts and existential dualisms that are the cause of human suffering. The koan, in essence, is a pedagogy, a teaching device, for exploring life's deepest existential questions – through direct experience, and through a leap to sudden, creative insight (kensho). The koan functions as a means of arousing the mind by “becoming one with” the dilemma it poses to the aspirant. It is a concentration device, but as Austin (1999, p. 119) notes, a nonspecific one. Attention is not allowed to fixate or rest on any thought, idea or concept – all of which rely on ordinary logical mentation.

A student working on a koan that has been assigned by a Zen teacher will present responses in a private encounter called dokusan. The Zen teacher will probe the student's understanding and realization, and offer guidance for future practice (Kapleau 1989). With advanced students, the Zen teacher will often “test” the student directly, demanding a more active demonstration of the student's understanding. However, attempts to “solve” a koan by resorting to rational and logical thinking are futile. Koans, like dilemmas, do not have logical solutions. Still, the Zen student, out of habit, will still try to resolve a koan by engaging in analytical thought. Zen masters will summarily reject rational answers. Hence, the student working on a koan is caught in a dilemma: “an answer is expected; yet no conceivable answer is ever accepted” (Austin 1999, p. 113). James Austin, a neurologist and long-time Zen practitioner, describes the process of working on a koan:

Still, the student inside everyone casts about, looking for rational answers, word answers. So ingrained is our habit of solving all problems by analytic thought that we keep throwing thoughts “at” the koan even though it has no logical solution. This leaves us baffled, because a koan cuts across every previous assumption we’ve been programmed to believe is true about ourselves and about the world we live in. ... Moreover, so long as you harbor intellectual notions of what the “correct” answer is, they will block your access into the deeper levels of consciousness, the ground from which intuitions spring. (p. 112)

Repeated failed attempts to “solve” the koan can lead to an impasse. This often leaves the Zen student dumbfounded, confused, frustrated, embarrassed, anxious, and even in a state of despair. Zen master Hakuin likened working on a koan to a rat caught inside a bamboo tube (Low 2006). The rat is stuck – it cannot go forward or back – but cannot stay where it is. Such a situation has the same characteristics when faced with two horns of a vexing dilemma. Hakuin called this the “Great Doubt”, writing, “At the bottom of great doubt lies great awakening. If you doubt fully, you will awaken fully”. The doubt Hakuin is referring to does not involve hesitation, inaction or skepticism. Rather, this form of doubt is the deep yearning for unity, an intuitive sense that reality is not fundamentally divided and dualistic.

Zen koan practice moves in the opposite direction of the traditional Western pursuit of certainty, the latter of which relies upon ratiocination (Graham 2000). In contrast, Zen induces doubt to the point that the practitioner must make the leap beyond intellect and rational thought. The ambiguity of working on a koan provokes such doubt, or the “doubt sensation”. Rather than avoiding this ambiguity, the student is instructed to embrace it, and go deeper into the doubt sensation. Students are encouraged to mull over the koan, not just in formal meditation periods, but throughout the day. This intense preoccupation with the koan acts to access deeper layers of the subconscious, which resembles a sustained period of concentration that is akin to the “incubation” phase of the creative process.

As Austin (1999) notes, the greater the intensity applied to working on a koan, the greater potential release. “Great doubt; great release”. Staying with the doubt sensation then is the key to breaking through the dilemma of a koan. Batchelor (1990, p. 16) describes this deepening of doubt as:

... neither a cognitive hinge, nor a psychological defect, but a state of existential perplexity. It is not resolved through adopting a set of beliefs and achieving a pseudo-certainty, but deliberately intensified, or “coagulated” as the texts say, into a “mass of doubt.” In other words, the deepest doubts or questions you have about existence are realized to be the key, which, if turned correctly and with the right force, can open to their “response.” This existential perplexity is the very place within us where awakening is the closest. To deny it and adopt a comforting set of beliefs is to renounce the very impulse that keeps one on track.

The dedication required of the Zen practitioner working on a koan is not all that different from an executive struggling with a highly ambiguous and

conflict ridden dilemma. The Zen student working on a koan, like the executive faced with a vexing dilemma, needs to completely embrace what appears on the surface to be irresolvable, illogical, or impenetrable – and to go deep into this ambiguity until a creative, unprecedented and sudden response emerges. Both the Zen student working on a koan and the executive facing a dilemma must enter into this ambiguity, and to stay with the doubt sensation while simultaneously fueling a yearning for a resolution (Low 2002).

EEG studies found that subjects who concentrated on koans during their zazen meditation produced more coherent and higher alpha wave activity, than if they were merely meditating without a koan (Suzuki 1981). Austin (1999, p. 114) speculates that deeper brain circuitries suddenly become unconditioned when resolution of a koan occurs. Insight arrives suddenly only after the student faces this ambiguity head on and struggles with it until a resolution comes from a transcendent source. When working on a koan one must always find the incongruity, the twist, and the double bind because this alone is the entrance to the koan. Commenting on the need to bypass conventional thinking, Austin (1999, pp. 112–113) states:

What does resolve the koan? Only the flash of profound insight. Prajna cleaves the layers of unconscious and preconscious mental processes, makes direct sense out of apparent nonsense.<sup>1</sup> Down at such deeper physiological levels, no conventional thought structure imposes its formal, logical constraints. No discursive intellect laden with hair-splitting distinctions makes its home among such circuitries. Nor is the nature of the koan such that it can be resolved through analogies, symbols, or anything said about symbols. These, too, add cognitive and affective layers which can only deflect the immediate thrust of insight.

### ***The koan and the double bind***

Bateson *et al.* (1956) often used the example of a famous Zen koan as a means to illustrate what he meant by the double bind. A Zen master, raising his hand, said, “If you call this a hand I will give you thirty blows of my stick; if you say it is not a hand I will give you thirty blows of my stick. Now, what is it?” The Zen student is also caught in a double bind; the Zen master expects a response, but any conceivable answer or conceptual response will be rejected. While there are similarities between koans and double binds, in Zen, koans are used for awakening and liberation from suffering, not as a technique to impose punishment.

Similarly, koan practice can be thought of as an intensification of a yearning to transcend the double bind that is part of the existential human condition. This can be thought of as the “primordial double bind”, experienced as existential angst, feeling of lack, and an ongoing sense of dissatisfaction. In Buddhism, this schism within human experience is known as *dukkha* – which means duality or twoness. Paradoxically, as human beings, we have a deep and intuitive sense of an underlying unity, yet we also experience ourselves as

separate individuals with a unique viewpoint. In this respect, the human condition is faced with the ongoing challenge of working within two self-consistent but habitually incompatible frames of reference; on the one hand, an intuitive sense of an underlying unity, and on the other hand, the seeming reality of being a separate, distinct individual. Because the primordial double bind can be the cause of much stress and anxiety, it is normally not the object of our attention.

An example from a classic Zen koan from Case 40 of the *Wu-men kuan* collection will illustrate how the Zen master puts his disciples into a double-bind situation:

Master Pai-chang requires that his two leading followers tell him about a water pitcher, so that the winner of the contest will be awarded the abbacy of a new mountain temple. The disciples are put in a double-bind of having to describe the object, “Without calling it a pitcher and without not calling it a pitcher.” ... The monk declared the victor in case 40, Kuei-shan, starts the contest as an underdog competing against the monastery’s head monk, who makes an indirect verbal response that tries to dodgethe question: “It can’t be called a wooden clog.” Following this Kuei-shan’s response, at once more indirect by avoiding the issue altogether and more direct by making a physical assault on the object and by extension the questioner, is to kick over the pitcher and simply walk away from the scene. His demonstrative gesture prevails over the adversary, whose answer relied on words, albeit in an inscrutable way. Kuei-shan is praised by Pai-chang and goes on to become the founder of the new monastery. (Heine 2003, p. 526)

Commenting on Kuei-shan’s resolution of the koan, Heine (2003) states:

According to Ch’an encounter dialogs, the successful way of handling a dilemma is to prove yourself not in words alone, but through some action, demonstration, or gesture that demonstrates a profound understanding. Words intersect with no-words, and structure with anti-structure, to place personal realization rather than ideas as the highest truth.

As illustrated above, Zen koan practice forces the practitioner to enter the primordial double bind. In his book, *Zen in the Art of Archery*, Herrigel (1999) pointed out that the first thing that a master archer teaches his student is how to draw the bow. As Herrigel pointed out, this takes a great deal of work and practice. Drawing the bow has its counterpart in koan practice by entering the double bind, thereby arousing the doubt sensation. Then the arrow must be released, but this release must come instantaneously without intention. Classical logic is driven to attain clarity by reducing any form of ambiguity. Yet, the primordial double bind amplifies ambiguity and resolution of the koan requires going beyond logical modes of thinking. The same is true for the management of dilemmas. Table 2 below provides examples of management dilemmas within the idioms of Zen koans.

Table 2. Typical management dilemmas within a Zen Buddhist Koan idiom.

Zen Buddhist Koans	Management dilemmas
If you say this is a stick, I will give you thirty blows. If you say this is not a stick, I will give you thirty blows. What do you say?	If you say profit is the goal, your customers will desert you. If you say quality is the goal, your shareholders will desert you. What do you say?
See behind your brain.	See behind your mental models.
Where is the dividing line between east and west?	Where is the dividing line between efficiency and quality?
How do you walk?	How do you lead?
Under the clear sky and bright sun, you do not have to point out this in the east or that in the west. But you still have to administer medicine appropriate to temporal conditions. Now tell me, in doing this, is it better to release or hold firm?	Half of the department wishes you to be a firm manager. The other half wishes you to be a flexible manager. How do you act?

Reliance on a logical mode of thinking encourages managers to seek simplistic solutions to dilemmas, choosing one or the other horn of a dilemma as the right choice. This is why the mode of thinking employed (and we use this term loosely), or better, the way the mind functions, has much to do whether dilemmas will be dealt with creatively or not. Effective resolution of dilemmas – like Zen koans – is an art, and such an art requires creative insight.

### ***Kensho and creative insight***

The extraordinary state of consciousness evoked through Zen koan practice can be viewed as one end of a broad continuum of creative insight. Both the resolution of managerial dilemmas and Zen koans require a creative leap in consciousness that results in a novel insight. In Rinzai Zen, the moment at which the double bind of a koan is suddenly resolved is called *kensho*. This form of “insight-wisdom” manifests as an extraordinary leap of intuition that is noetic in nature, dissolving self-reference and all other subject/object dualities. Thus a koan is never solved using logical or conceptual reasoning based on a self-referential mode of perception. After sustained concentration on the koan, which resembles the incubation period during a creative process, *kensho* arrives suddenly as an insight that breaks through the impasse. It is very similar to the “Aha! phenomenon” or “Eureka moment” that occurs in the creative process (Wallas 1926/1949, Davidson 1995, Martindale 1999). *Kensho*, however, is a much more refined level of “selfless insight” (Austin 2009), that,

according to Suzuki amounts to “seeing directly into one’s true nature”. In the *Lankavatara Sutra* (Suzuki 1981) this moment is called *paravritti*, which is translated as a “turning about in the deepest seat of consciousness”. This turn-about amounts to a profound reorganization of perception which is both transformative and energizing in its capacity to overturn prior fixations, habitual preconceptions and self-identification. The relief that accompanies resolution of a koan is often accompanied by retrospective astonishment over the answer – either in terms of its utter simplicity or unexpected novelty. Sudden dissolution of functional fixedness (Guilford 1967) that gives rise to the fresh, creative insight is often expressed as “Why didn’t I think of this before?” or “How could I have not seen this?” or “Where did that insight come from?” In the moment of *kensho*, the Zen student is liberated from habitual, self-fixated thoughts. Austin (2009, p. 157) comments on this process at length:

Too easily do we assume that conscious, logical thoughts are a prerequisite to solving all problems ... the brain uses many quick, subconscious, automatic sources of understanding and acting. Insight processing opens up these sources, and suspends its premature biases as it becomes less Self-encumbered. ... They lead to the impression that our insight-solutions seem to strike from out of the blue, and appear to arrive with no self-referential details attached.

The Zen koan pedagogy relies on the experienced teacher or master to verify the authenticity of a student’s realization. Heady, philosophical or clever responses on the part of the student will fail the test. Zen masters are not interested in academic or theoretical answers. The Zen master prods the student to demonstrate understanding by acting. Indeed, because of the sudden and transformative nature of *kensho*, the Zen student must show or demonstrate his or her deep and embodied understanding. Describing this process, Kapleau (1989) states:

In seeking to demonstrate the spirit of the masters, as demanded by koans, the student can relate to the koan’s protagonists as flesh-and-blood human beings. A student working on koans has a front-row seat to an ongoing drama in which he is both observer and participant. ... Intellect must transcend itself, entering a wholly new realm in which the unitive mind, the creative intuition, is brought into play. ... Because koans cannot be theorized about in the abstract, they compel us to feel and act, not merely talk and think. (55/63).

The Zen teacher will appraise the demonstration according to its spontaneity and creativity. Spontaneity is an important outcome of Zen practice, and is shown in the various arts that have been developed from the practice. In calligraphy and *sume-i* painting, for example, exquisite productions are created with a single, continuous stroke of the brush on very porous paper. In the martial arts (karate, sword fighting, archery) spontaneity is essential. Premeditation brings hesitancy and openings for the opponent to thrust home. *Kensho* opens up the field for novel and spontaneous behavior that is unencumbered by habit, pretense, self-doubt or other sorts of premeditated responses. In this respect,

action and acting are key components of Zen koan practice. A gap between “knowing” and “doing” is unacceptable in Zen. Empirical evidence of awakening in Zen is demonstrated in liberated action, and in everyday behavior.

### ***Mental capacity and managerial work***

Managerial work requires the mental capacities to perceive, tolerate and creatively resolve ongoing dilemmas. Such mental capacities go beyond mere analytical and logical thinking abilities, to include the development and cultivation of perceptual skills, stress tolerance, and the exercise of creative-intuitive insight. Koan practice in Zen Buddhism trains the mind by forcing the practitioner to enter deeply into the ambiguity of a dilemma. The somatic immersion in the dilemma of a koan is induced through the rigorous discipline of *zazen* meditation, periodically intensified during retreats (*sesshins*), combined with probing and direct dialogical encounters with a master teacher. While the practice of Zen and the work of management are worlds apart, the mental capacities required to apprehend and creatively reconcile organizational dilemmas are only different in degree from those employed by the Zen practitioner attempting to resolve a koan.

We can consider mental capacities as a spectrum of thought, ranging from logical analytical thought to more higher-order intuitive modes of creative insight. In both cases, creative resolution of dilemmas – whether it is a classic managerial dilemma between cost vs. quality, or a classic Zen koan – requires going beyond the limits of logical and analytical thinking. Education and training in perceptual and problem-finding skills is a key managerial capacity. Management education, particularly MBA programs, have been chastised for their excessive dependence upon analytical thinking (Pfeffer and Fong 2002; Clegg and Ross-Smith 2003; Connolly 2003; Mintzberg 2004). However, as we have reiterated, dilemmas are not problems. The distinction between perception and analytical thinking is at the root of some critical re-evaluation of MBA programs. Managerial dilemmas must first be perceived and recognized. Such a revelation is not new. Over 40 years ago Ashen (1969) noted that: “While the analytical skills needed for problem solving are important, more crucial to managerial success are the perceptual skills needed to identify problems long before evidence of them can be found by even the most advanced management system. Since these perceptual skills are extremely difficult to develop in the classroom, they are now largely left to be developed on the job”.

Clearly, perceiving a problem is more of an intuitive process, than an intellectual one. As a mental capacity, perception involves varying levels of openness to ambiguity and the ability to use the mind in non-logical ways. The recent appreciation of the arts and aesthetics and its pedagogical import to leadership development underscores the need to expand our conceptions of the mental capacities required to effectively navigate in an increasingly complex and uncertain environment (Adler 2006, Linstead and Höpfl 2000, Ladkin and Taylor 2010).



Zen Buddhist koan practice is a unique pedagogy that offers Western management educators insights into how such mental capacities can be developed. First, Zen koan practice trains the mind to go beyond logical or conceptual formulations. The koan pedagogy we have described is aimed at heightening perception and creative insight. Perception that leads to creative insight (*kensho*) ends in action; intellect and analytical thinking in a logical formulation, or conceptual understanding. Perception therefore concerns itself with a totality, a whole, while the intellect concerns itself with an analysis of parts. Perception that leads to creative insight is immediate and occurs outside the boundaries of ordinary intellectual thought; intellectual analysis is deliberate, linear and gradual.

Second, Zen koan practice increases the capacity to tolerate the stress that is induced when faced with a dilemma. Zen Buddhist practice utilizes *zazen* meditation, which requires the practitioner to become deeply relaxed while simultaneously becoming extremely alert and vigilant. That is, by following the breath, and while keep the koan in mind, the Zen student arouses the mind, but without fixating it on any particular thought, image or sensation. This discipline trains the mind to perceive without biases, judgments, or attachments.

As noted above, managers must first perceive the dilemma. Further, the greater the level of complexity, conflict and ambiguity, the longer the time span required to resolve it (Jaques 1996). This means that to fully reconcile a dilemma, a manager must not only perceive it, but also “hold” or retain it long enough in the mind, in order to generate a creative response or novel action. Because of the tension generated by the dilemma, stress is involved. Stress tolerance is a key managerial capacity that enables a manager to embrace the ambiguity, tension and stress that is inherent in dilemmas. Thus, when faced with a dilemma, stress can be reduced either through denial, avoidance, and oversimplification of the dilemma, or by holding the tension sufficiently long and deep enough in the mind until a creative insight results in reconciliation. Thus, the mental capacity to bear stress, to tolerate ambiguity, and to carry the burden of risk when faced with a dilemma is stress tolerance.

In some respects, the managerial capacity for stress tolerance can also be viewed as a period of incubation, which has been associated with the creative process (Wallas 1926/1949, Martindale 1999). Neuroscientific studies using fMRI technology have confirmed that there is an inhibitory phase occurring in brain prior to creative insight (Lau and Passingham 2007; Luo and Knoblich 2007). Thus, as organizational complexity increases at higher levels of management, stress tolerance becomes a critical competency. However, as Mintzberg’s (1973) research has shown, the nature of managerial work is characterized by unrealistic time pressures, constant interruptions, and continuous engagement in demanding mental tasks. Senior managers are prone to being caught in an “activity trap”, with little time for reflection. Amabile *et al.* (2002) have also found that unrealistic time pressures and constant interruptions interfere with the incubation time necessary for creative insight.

Finally, the capacity for acting and fully embodying what one knows is the final exam in the Zen Buddhist koan school. If insight into a koan is authentic, the student's response will be unmediated by conceptual analysis; it will be direct, spontaneous and irrepressible. Arm-chair theorizing about what the koan might mean is not Zen practice. Since there is no duality or gap between knowing and doing when creative insight (*kensho*) occurs, the student must demonstrate original insight through embodied performance to the Zen master. In contrast, management practice has suffered from a knowing-doing gap (Pfeffer and Sutton 2000). Management theories, concepts and models are not in short supply; but acting on such acquired knowledge is often inhibited when managers actually face organizational dilemmas. Recent interest in such ideas as "presence" (Senge *et al.* 2005), where deeper levels of learning integrate thinking and doing, points to the need for incorporating pedagogies that promote the embodiment of knowledge in management education.

### **Conclusion**

Historically, Zen monasteries have always incorporated "work practice" into the daily routine of monks. Even modern Zen centers typically punctuate long periods of *zazen* meditation with periods of physical labor. This should come as no surprise as the spirit of Zen considers wholehearted engagement with everyday life to be the grist for spiritual awakening. There is a burgeoning interest in how the benefits of Zen training can be applied to the workplace. Numerous books by contemporary Zen teachers (Carroll 2006, Heine 2005, Kaye 1997, Lesser 2005, Richmond 2000) provide insights and examples of how the intuitive and transcendent wisdom of Zen – based on its famous aphorism "ordinary mind is the Way" – can transform the ordinary world of work into enlightened action. In particular, Zen koan practice can train managers to perceive and reframe dilemmas as creative and dialogic encounters, rather than as stress inducing zero-sum conflicts.

Managing the tensions and contradictions inherent in dilemmas requires cognitive and behavioral flexibility, coupled with a capacity for emotional equanimity (Smith and Lewis 2011). Zen practice offers a unique opportunity for training the mind to tolerate the ambiguities, tensions and contradictions embedded in organizational dilemmas, especially in situations characterized by uncertainty and change. The growing body of neuroscience research literature suggests that long-term Zen meditation may lead to changes in the cortical thickness of the brain, which in turn may lower sensitivity to physical pain (Grant *et al.* 2010, Lazar *et al.* 2005, Pagnoni and Cekic 2007). These neurological findings have relevance in that a lower sensitivity to pain may be positively correlated with emotional equanimity, a capacity which Smith and Lewis (2011) propose is key to "hosting paradoxical cognitions". Zen meditation and koan practice foster a panoramic awareness without personal and habitual attachment to thoughts, feelings, sensations, and images – often referred to paradoxically as "thinking not-thinking" or "no mind". In Zen, this heightened

state of cognitive flexibility is equated to “experiencing reality as it really is”. The openness and acceptance of paradox, and the associated tensions inherent in dilemmas, can be developed through Zen training and practice.

Zen Buddhism is no longer an exotic Eastern monastic religion. Over the last half century, over 500 Zen centers have been established throughout North America, Europe, and Australia. Western Zen Buddhists are, for the majority, lay practitioners who work and have families. Future research by workplace spirituality (WPS) scholars can take advantage of this trend. WPS scholars can aim to identify long-term Zen practitioners in managerial positions and conduct survey-based empirical research on the creative resolution of dilemmas, including variables such as cognitive and behavioral complexities, tolerance for ambiguity and emotional equanimity (Smith and Lewis 2011). Other methodological approaches could employ micro-sociological techniques such as ethnomethodology, discourse analysis, and narrative methods to more closely examine how managers with Zen training perceive, respond, and resolve complex dilemmas. In addition, experimental studies could be designed that compare Zen practitioner – managers with managers who never practiced Zen in their effectiveness in creatively resolving dilemmas.

### Note

1. Prajna is the Sanskrit term for the insight-wisdom of seeing directly that all phenomena are empty of independent existence.

### Notes on contributors

Albert Low is the director of the Montreal Zen Center. His formal training began at the Rochester Zen Center in 1966 under the tutelage of Roshi Phillip Kapleau. In 2003, he received an honorary Doctor of Laws (LLD) from Queen’s University in Kingston, Ontario. He is the author of *Zen and Creative Management*.

Ronald E. Purser is a professor of Management at San Francisco State University and past division chair of the Organization Development and Change division of the Academy of Management. He has studied with numerous Zen and Tibetan Buddhist teachers, and is currently a student of Albert Low of the Montreal Zen Center.

### References

- Adler, N.J., 2006. The arts and leadership: now that we can do anything, what will we do? *Academy of Management Learning and Education*, 5 (4), 486–499.
- Aitken, R., 1991. *The gateless barrier: the Wu-Men kuan (Mumokan)*. Berkeley, CA: North Point Press.
- Amabile, T.M., Hadley, C.N., and Kramer, S., 2002. *Creativity under the gun*. Aug: Harvard Business Review.
- Ashen, M., 1969. The management of ideas. *Harvard Business Review*, July-August, 99–107.
- Austin, J., 1999. *Zen and the brain*. Cambridge, MA: MIT Press.
- Austin, J., 2009. *Selfless insight*. Cambridge, MA: MIT Press.

- Baden-Fuller, C. and Volberda, H., 1997. Strategic renewal: how large complex organizations prepare for the future. *International Studies of Management and Organization*, 27 (2), 95–120.
- Barrett, D., 1998. *The paradox process: Creative business solutions*. New York, NY: Amacom.
- Batchelor, S., 1990. *The faith to doubt: glimpses of Buddhist uncertainty*. Berkeley, CA: Parallax Press.
- Bateson, G., et al., (1956). Toward a theory of schizophrenia. *Behavioural Science*, 1 (4). Reprinted in M. Berger (Ed.), *Beyond the double bind*. (1978). New York, NY: Brunner/Mazel
- Cameron, K. and Quinn, R., 1988. *Paradox and transformation*. New York, NY: Ballinger.
- Cameron, K. and Quinn, R., 1999. *Diagnosing and changing organizational culture*. Reading, MA: Addison Wesley.
- Carroll, M., 2006. *Awake at work: 35 practical Buddhist principles for achieving clarity, and balance in the midst of work's chaos*. Boulder, CO: Shambala.
- Clearly, T., 1979. *Unlocking the Zen koan*. Berkeley, CA: North Atlantic Books.
- Clegg, S.R. and Ross-Smith, A., 2003. Revisiting the boundaries: management education and learning in a postpositivistic world. *Academy of Management Learning and Education*, 2 (1), 85–98.
- Collins, J. and Porras, J., 2001. *From good to great*. New York, NY: Harper.
- Connolly, M., 2003. The end of the MBA as we know it? *Academy of Management Learning and Education*, 2 (4), 365–367.
- Davidson, 1995. The suddenness of insight. In: R. Sternberg and J. Davidson, eds. *The nature of insight*. Cambridge, MA: MIT Press.
- Eisenhardt, K., 2000. Paradox spirals and ambivalence: The new language of change and plurais. *Academy of Management Executive*, 25 (4), 703–705.
- Fletcher, J. and Olwyler, K., 1997. *Paradoxical thinking*. San Francisco: Berrett-Koehler.
- Graham, A.S., 2000. Art, language and truth in Heidegger's radical Zen. *Journal of Chinese Philosophy*, 27 (4), 503–543.
- Grant, J.A., et al., 2010. Cortical thickness and pain sensitivity in zen meditators. *Emotion*, 10 (1), 43–53.
- Guilford, J.P., 1967. *The nature of human intelligence*. New York, NY: McGraw Hill.
- Hampden-Turner, C., 1971. *Radical man*. London: Gerald Duckworth.
- Hampden-Turner, C. and Trompenaars, F., 2000. *Building cross-cultural competence: how to create wealth from conflicting values*. Chichester, UK: Wiley.
- Handy, C., 1994. *The age of paradox*. Boston, MA: Harvard Business School Press.
- Heine, S., 2003. Ch'an Buddhist Kung-Ans as models for interpersonal behaviors. *Journal of Chinese Philosophy*, 30 (3/4), 525–540.
- Heine, S., 2005. *White collar Zen*. Oxford, UK: Oxford University Press.
- Herrigel, E., 1999. *Zen in the art of archery*. New York, NY: Vintage.
- Hershock, P., 1996. *Liberating intimacy: enlightenment and social virtuosity in Ch'an Buddhism*. Albany, NY: State University of New York Press.
- Hershock, P., 2005. *Chan Buddhism*. Honolulu: University of Hawaii Press.
- Jacques, E., 1996. *The requisite organization*. Arlington, VA: Cason Hall.
- Johnson, B., 1996. *Polarity management: identifying and managing unsolvable problems*. Amherst, MA: HRD Press.
- Kahn, B., Wolfe, D., Quinn, R., and Snoek, 1964. *Organizational stress: studies in role conflict and ambiguity*. Amherst, MA: HRD Press.
- Kapleau, P., 1966. *The three pillars of Zen*. New York, NY: Harper and Row.

- Kapleau, P., 1989. The private encounter with the master. In: K. Kraft, ed. *Zen: tradition and transition: a sourcebook by contemporary Zen masters and scholars*. New York, NY: Grove Press, 44–69.
- Kapleau, P., 2001. *Straight to the heart of Zen: eleven classic koans and their inner meaning*. Boston, MA: Shambala.
- Kaye, L., 1997. *Zen at work*. New York, NY: Crown Trade Paperback.
- Koestler, A., 1964. *The act of creation*. London: Pan Books.
- Ladkin, D. and Taylor, S. 2010. Leadership as art: variations on a theme. *Leadership*, 6, 235–241.
- Lau, H. and Passingham, R., 2007. Unconscious activation of the cognitive control system in the human prefrontal cortex. *Journal of Neuroscience*, 27, 580–581.
- Lazar, S.W., et al., 2005. Meditation experience is associated with increased cortical thickness. *NeuroReport*, 16 (17), 1893–1997.
- Lesser, M., 2005. *Z.B.A. – Zen Business Administration – how Zen practice can transform your work and your life*. Novato, CA: New World Library.
- Linstead, S. and Höpfl, H.J., 2000. *The Aesthetics of organisation*. London: Sage.
- Low, A., 1976. *Zen and creative management*. Rutland, VT: Charles E. Tuttle.
- Low, A., 1984. *The iron cow of Zen*. Rutland, VT: Charles E. Tuttle.
- Low, A., 2002. *Creating consciousness*. Ashland, OR: White Cloud Press.
- Low, A., 2006. *Hakuin on kensho*. Boulder, CO: Shambala.
- Low, A., 2008a. *Conflict and creativity at work: the human roots of corporate life*. Portland, OR: Sussex Academic Press.
- Low, A., 2008b. *Origin of human nature: a Zen Buddhist looks at evolution*. Portland, OR: Sussex Academic Press.
- Luo, G. and Knoblich, G., 2007. Studying insight problem solving with neuroscientific methods. *Methods*, 42, 77–86.
- Martin, R., 2007. How successful leaders think. *Harvard Business Review*, June, pp. 75–79.
- Martin, R., 2009. *The opposable mind*. Boston, MA: Harvard Business School.
- Martin, R., 2010. Rotman: a new way to think. <http://www.rotman.utoronto.ca/integrativethinking/index.htm>.
- Martindale, C., 1999. Biological bases of creativity. In: R. Sternberg, ed. *Handbook of creativity*. New York, NY: Cambridge University Press, 137–152.
- Mintzberg, H., 1973. *The Nature of Managerial Work*. New York, NY: Harper Row.
- Mintzberg, H., (2001). An interview with Henry Mintzberg: What's wrong with business education today. *Economist*, Nov 2.
- Mintzberg, H., 2004. *Managers not MBAs*. San Francisco, CA: Barrett-Koehler.
- Pagnoni, G. and Cekic, M., 2007. Age effects on gray matter volume and attentional performance in Zen meditation. *Neurobiology of Aging*, 28 (10), 1623–1627.
- Pascale, R., 1991. *Managing on the edge*. New York, NY: Touchstone.
- Pfeffer, J. and Fong, C., 2002. The end of business schools? Less success than meets the eyes. *Academy of Management Learning and Education*, 1 (1), 78–95.
- Pfeffer, J. and Sutton, R., 2000. *The knowing-doing gap*. Boston, MA: Harvard Business School.
- Quinn, R., 1988. *Beyond rational management: mastering the paradoxes and demands of high performance*. San Francisco, CA: Jossey-Bass.
- Richmond, L., 2000. *Work as spiritual practice: a practical Buddhist approach to inner growth and satisfaction on the job*. New York, NY: Broadway Books.
- Rothenberg, A., 1990. *Creativity and madness: new findings and old stereotypes*. Baltimore, MD: John Hopkins University Press.
- Seet, P.S., 2007. Reconciling entrepreneurial dilemmas. *Journal of Asian entrepreneurship and sustainability*, 3 (3), 74–81.

- Senge, P., *et al.*, 2005. *Elegant failure: a guide to Zen koans*. Berkeley, CA: Rodmell Press.
- Shrobe, R., 2010. *Elegant failure: a guide to Zen koans*. Berkeley, CA: Rodmell Press.
- Smith, K. and Berg, D., 1987. *Paradoxes of group life*. San Francisco, CA: Jossey-Bass.
- Smith, W.K. and Lewis, M.W., 2011. Toward a theory of paradox: a dynamic equilibrium model of organizing. *Academy of Management Review*, 36 (3), 381–403.
- Suzuki, D.T., 1957. *An introduction to Zen Buddhism*. London: Rider & Company.
- Suzuki, D.T., 1981. *Studies in the Lankavatara Sutra*. Boulder, CO: Prajna Press.
- Suzuki, D.T., 1987. *The Zen koan as a means of attaining enlightenment*. Rutland, VT: Charles E. Tuttle.
- Trompenaars, F. and Hampden-Turner, C., 2002. *21 leaders for the 21st century*. New York, NY: McGraw Hill.
- Tulku, T., 1987. *Love of knowledge*. Berkeley, CA: Dharma.
- Wallas, G., 1926/1949. *The art of thought*. New York, NY: Dharma.