Complexity theory and change management in sport organizations

Aaron C. T. Smith

School of Sport, Tourism and Hospitality Management, La Trobe University, Melbourne, Australia

This paper employs complexity theory and the principle of emergence as a construct to explain some forms of change observed during the analysis of research concerning change in Australian sport organizations. Although a consortium of well-established theories proved advantageous in revealing the nature of change attempts within a sample of eight case organizations, some changes remained inexplicable. Upon further investigation, these changes were observed to have properties associated with emergence. Several examples are presented to explicate the emergent behavior. This paper presents evidence to suggest that complexity theory has utility as an alternative perspective explaining certain types of organizational change.

Introduction

Perhaps the most revealing measure of the usefulness of a theory is its ability to resolve paradox. Molinsky (1999) suggested that there are several paradoxical impediments to change including the notion that change depends upon management, but that management action can sometimes make change less likely to occur. This paper is concerned with the resolution of a converse paradox; that management inaction can make change more likely to occur, a possibility elucidated through complexity thinking.

The data discussed in this paper were collected in a previous study that sought to explore the nature of change in a sample of Australian sport organizations. This study noted that a range of conventional theoretical explanations could be deployed to describe the change that occurred. These included variations of institutional theory, strategic choice theory, population ecology, systems models and punctuated equilibrium theory. That these change theories are useful descriptors is not in doubt. However, the study failed to account for change that occurred spontaneously, unpredictably and without the intentional guidance of senior management. This in itself was not cause for concern, as no data set can explain everything, and many of the above theoretical perspectives do not preclude this form of change. However, they do not adequately explain it either. This paper has been prompted by a leak in the application of well-established change theory, and seeks to consider the veracity of complexity theory for plugging this leak.

The key issue in question is the nature of unintentional change recorded during a previous change study. This form of change displays properties characteristic of emergence. First, change was noted that ostensibly came from nowhere. Secondly, the presence of change appeared irrespective of the composition of staff, giving the impression that it was not linked to any covert activity. Finally, the changes observed were innovative responses to challenging organizational circumstances, suggesting that some, albeit mysterious, form of organization was behind their conception. The purpose of this paper can be conflated to the resolution of the following paradox: Some sophisticated change and innovation occurs at the planned instigation of senior management, but not all that occurs. The intention is to consider this conundrum in light of complexity theory. If complexity theory and the principle of emergence are useful constructs for explaining certain murky but advantageous changes, the possibility for such change to be deliberately harnessed and incorporated into strategic efforts may be improved. As Letiche (2000) contends, it is methodologically and theoretically consistent for complexity studies to report ethnographies of emergent action.

Dent (1999) provides a suitable platform for defining complexity science. He describes it as "an approach to research, study, and perspective that makes the philosophical assumptions of the emerging worldview" (Dent, 1999: 5). This worldview stands in contrast to the classical view, or what Dent calls the traditional world view, which is founded on the causal, reductionist interpretations of the world provided by Newtonian physics. Thus, complexity theory emphasizes acausal, holistic interpretations. According to Marion and Bacon (2000), "Complex systems are robust, involving multiple, often redundant chains of interaction and causation…" (p.72). They identify three characteristics of complexity theory. First, complexly structured, nonadditive behavior emerges out of interactive networks; the whole is more than the sum of its parts. Secondly, complex systems exhibit nonlinear behavior that is unpredictably related to input. Thirdly, complex behavior is somewhere between predictability and non-predictability, a position sometimes described as the 'edge of chaos' (Peters, 1992). This is the point where there is enough chaos or unpredictability to ensure that regularity and predictability is lost, but also enough order or predictability for consistency and

patterns to endure. The problem is that at this 'edge of chaos' undetectable variations in initial conditions (the butterfly's wings flap at different speeds or at different altitudes) can lead to the development of behavior or the development of conditions that may be totally dissimilar. It is herein that new and unimagined properties can emerge. For example, Tom Peters (1987, 1992) argues that managers need to move people from complacency toward the edge of chaos. The problem with this, of course, is that organizations move in and out of the edge of chaos all the time. Trying to keep workers in it can lead to nervous breakdowns and totally unpredictable results which can include the breakdown of an organization. Finally, complex systems are robust, so such breakdowns should be extreme and unusual.

For the purposes of this paper, complexity theory may be seen as a perspective for interpreting the behavior of fundamental, interacting units with the awareness that the collective activity of the units is not fully explained by their sum, and that they may produce emergent properties. These properties feature spontaneous, unpredictable and self-organized patterns and behaviors. Complexity theory offers the twin benefits of describing how complex systems can generate simple outcomes while looking at the holistic system and not just the component parts. For example, a city is a complex organism made up of millions of simple human beings. Or, a body is a complex organism made up of millions of simple cells. When the millions of simple entities come together, they interact and new levels of operation and organization emerge. The type of individuals in the city, or the type of cells in the body, create different system reactions and thus dissimilar behavior within the complex entity. In the context of organizational change, complexity theory provides an avenue for explaining change possessing emergent properties. As Goldstein (1999) observes, emergence functions as a descriptor of the patterns and properties that are exhibited at the macro level.

This paper is organized into four sections. Following this introduction, a brief review of literature is used to place the paper within two bodies of knowledge: change management and complexity theory. Research concerning change management in the sport industry has been omitted here, as the issue of focus is the presence of emergent behavior in an organization, rather than its industrial context. Next, the research design employed for the study that yielded the data under consideration is summarized. This section focuses on the elements that arose from the research which could not be adequately explained using conventional approaches. These anomalous changes are described in the "Results and Discussion" section. This paper culminates in a conclusion intended to draw some tentative conclusions about the utility of complexity theory as an explanatory change management tool.

Literature review

One way of understanding the nuances of different change theories is to consider them against two dimensions: *mode* and *level*, as suggested by Meyer, *et al.* (1993). 'Mode' refers to the size and rapidity of the change, while 'level' describes whether the change is internal to an organization or part of a sector-wide reform. Change may therefore be large or small and may occur inside an organization or within an industrial sector.

Incremental or 'first-order' changes that occur within organizations may be classified as 'adaptation' theories (Meyer, *et al.*, 1993). These theories assume that organizations adapt to their changing environments slowly but intentionally. Strategic choice theorists (Child, 1972; Smith & Berg, 1987) exemplify this view and argue that organizations have control over their destinies. Popular management 'gurus' such as Kotter (1990), Huber and Glick (1995) and Kanter (1989), each with their own method for change, also fit here, although they sometimes imply that their methods will bring about more rapid change.

In contrast, researchers such as Pettigrew (1985), Laughlin (1991) and Greenwood and Hinings (1996), may be considered instigators of 'metamorphosis' theories (Meyer, *et al.*, 1993), which suggest that organizations tend to be stable until they experience radical change, often without warning. The stimuli for these changes can come from life cycle change (Kimberly & Miles, 1980), or structure, strategy or technology change (Laughlin, 1991; Miller & Friesen, 1984; Miles & Snow, 1984; Tushman & Romanelli, 1985).

A third category of theory assumes incremental change within industries rather than individual organizations, and can be classified as evolutionary (Meyer, *et al.*, 1993). Population ecologists (McKelvey & Aldrich, 1983), for example, take a biological, Darwinian view of industrial behavior, where industries evolve to fit their environmental niche. Institutional theory emphasizes pressure toward homogeneity within an industrial sector, but unlike population ecology does not view competition for resources as the preeminent issue. Choice is not free; it is constricted within institutional boundaries.

Revolutionary change theories (Meyer, *et al.*, 1993) emphasize radical change within industries. The most prominent example is the punctuated-equilibrium model (Anderson & Tushman, 1990; Kimberley & Miles, 1980), borrowed from the biological natural selection concept (Gould, 1980), which indicates that

industries are substantially changed in between periods of relative inertia.

The majority of change management literature examines the differences intended by management (Salem, 2002). In general this reflects a desire for equilibrium and stability. However, this approach does not work as well in turbulent environments. Complexity theory in contrast views change as the norm, not the exception (Salem, 2002). It can almost be seen as a reverse of the punctuated equilibrium; disequilibrium is normal or should be normal, punctuated by odd periods of relative stability. The catch is, since complexity theory implies that instability should be normal, homeostasis can be viewed as a bad sign. Complex adaptive systems can evolve to a point between chaos and stability, where emergence is present. Equilibrium is the precursor of organizational death (Pascale, 1999).

Redfern and Christian (2003) acknowledged that planned change can be distinguished from emergent change, the former involving deliberate conscious reasoning and rational planning, whereas the latter is spontaneous and uncontrolled. They reported that change management in their industry of study - health - is much more likely to be dynamic, disorderly and uncertain, than rational or linear, as a result of the uncontrollable nature of the environment and the complexities of organizational life. Yet, they also conceded that each of the nine change programs they investigated has approached change in a planned, episodic way. This is symptomatic of the dominant perception of organizational success, the benchmark for which has traditionally focused upon systems and rules, all tightly controlling the activities of employees (Dolan, *et al.*, 2003). This standpoint is slowly ceding ground to perspectives of management that accept the presence of complexity within organizations as natural. For example, Brown and Eisenhardt (1997) employed an inductive method to examine how organizations engage in continuous change. They revealed that successful firms balance structure and chaos, and rely on a range of low-cost experimental initiatives as forays into the future. This complexity-consistent thinking was more effective than planning for, or reacting to, unforeseen changes.

The distinctions highlighted by well-established change theories helps to frame the nature of change attempts and their success. However, complexity theory offers a new perspective on change management because it discourages managers from making predictions about the future, instead encouraging them to allow innovation to emerge from the bottom up. As a result, complexity theory does not specify a mode of change; it is not necessarily incremental or radical, but it is spontaneous. Neither does it make assumptions about the level or impetus for change. Whether a stimulus is internal or external does not matter. The point instead is that where there is complexity in a system like an organization, there is also the possibility of unexpected, emergent change. Complexity theory treats organizations as living systems coevolving with their environments that cannot be reduced to their constituent parts, and "management is the most highly evolved form of complexity…" (Tasaka, 1999: 122).

From a change management perspective, emergent change is typically inadequately analyzed (Lissack, 1999), its causes remaining nebulous and its outcomes attributed to macro phenomena. This is partly because science has traditionally perceived change as the transition from one equilibrium state to another, but this sort of understanding does not capture the messiness of the actual change (Pascale, 1999).

This paper arises from the inadequacy of conventional change management theories to explain incidents of unintentional change observed in a sample of Australian sport organizations. While it is not within the scope of this paper to provide a comprehensive review of the research data, it is relevant to explain the design of the research from which the examples considered in this paper have been drawn.

Research design

The population for the study included National Sport Organizations (NSOs), State Sport Organizations (SSOs) and clubs participating in national league competitions. Australian sport is characterized by a tiered system built from a club foundation. Club representatives form SSOs, which manage state development and infrastructure. In turn, representatives from each state form NSOs, which subsequently manage the sport from a national perspective. National league competitions are variously formed, some under the control of the respective NSO, and others as independent, professional club-based entities. Clubs competing in these competitions are largely membership based, but some are privately owned (Westerbeek, *et al.*, 1995).

Theoretical sampling was used to select the cases in a method consistent with that proposed by Strauss and Corbin (1990). Sampling categories were established which divided the population on the basis of potential differences in change approach, as established by previous literature. First, sport organizations may possess differences as a result of their fundamental activities (Smith & Stewart, 1995; Thibault, *et al.*, 1990). National Sport Organizations and State Sporting Organizations are characterized by their concentration on sport governance, development and policy formulation, while clubs are principally focused on deliver-

ing a range of services and winning their respective competitions. The first sampling category divided the population into NSO/SSOs and clubs participating in national league competitions. Secondly, it is well established that the size (number of employees) and quantity of financial resources available to an organization will affect its change practices, policies and activities (Amis & Slack, 1996; Kikulis, *et al.*, 1995a, 1995b; Mills, 1994). In particular, the size of a sport organization has previously been associated with organizational identity, inertia and institutionalization (Cousens, 1997; Hinings & Greenwood, 1988; Thibault, *et al.*, 1990). A proxy figure was selected to delineate this category: sport organizations with gross revenue less than AUS$1.5 million and sport organizations with gross revenue in excess of AUS$1.5 million. This figure was chosen to ensure that 'professional' sport organizations with full-time personnel were distinguished from smaller, resource-limited organizations. This demarcation has also been employed by the State government agencies where the organizations are located as a reference point for funding allocations.

Three organizational members were interviewed for each of the eight cases created by the combinations of theoretical categories, including the senior operational managers, a junior paid employee or volunteer and a member of the board of management. The purpose of this selection was to create diversity in seniority across the organizational sample and to establish a consensus or 'triangulated' view of change practices. As a result, 24 interviews of approximately one hour in duration were conducted. Interviews were transcribed word for word prior to coding. Coding was undertaken in three stages, open, axial and selective, which are sequential and interrelated (Strauss & Corbin, 1994). Two researchers were involved in coding data. 'Check-coding', a technique where the researchers separately code the same data and subsequently come together to compare codes, was employed to enhance reliability (Miles & Huberman, 1994).

Results and discussion

Results from the exploratory study explained in the previous section yielded voluminous data about change in the sample organizations, and following inductive analysis, illustrated the interpretive usefulness of several long-standing change theories. For example, most change theories have emerged from evolutionary metaphors and tend to describe change in biological terms, emphasizing organizational life cycles. Some theories, such as institutional models, even go so far as to argue that changes toward conformity are part of the key to success. However, these theories are limited in their capacity to explain evolutionary developments away from the norms that produce new competitive advantages. Strategic choice theories prove useful here because they specify that it is the process of selecting strategies within the boundaries of the environment that determine an organization's fate.

As observed in several of the cases studied, while biological metaphors and strategic choice theories are useful in explaining success, they do not as easily explain failure, particularly when it is due to unforeseen circumstances. In the sample, more sport organizations have failed than succeeded. Some have experienced unprecedented success, endured complete inactivity and faced a seemingly imminent death all within the past few years. An historical reading of sport organizations in the sample would feature punctuated equilibriums including successes, environmental interventions and uneventful periods. Some might even argue that organizational development approaches help explain some changes as it views change as a result of decision making by individual actors within the system, and their responses to imposed change (Beeson & Davis, 2000). While a broad, inductive interpretation of results reinforces the relevance of well-established theories, they remind us that a supple application of multiple theoretical perspectives is required.

Change is pervasive in organizational life, but the mechanisms that govern its arrival are ambiguous and sometimes contradictory. Sport organizations are subject to the strategic whims of their leaders as well as the pressures forced upon them by their institutional environments. Responses may be either substantial or incremental, and may be intentional or unplanned. It is this last form of change that is the focus of this paper, as some unintended change could not be neatly explained through the theories just highlighted. For example, respondents considered this form of change to be 'accidental', where modifications were made to existing operations, not through design or strategic intent, not through evolutionary improvement, not even through external pressures, but as a result of a conflation of inadvertent, unintended circumstances.

Results indicated that new practices and processes were periodically introduced in the case organizations without the consent or knowledge of its managers. While managers attempted to direct changes to fit with strategic goals, they admitted to a degree of powerlessness over these apparently random, unexplained and often covert events. The implication of the term 'accident' is that the change in question is arbitrary and directionless. But this is not a good description of the changes recorded by respondents as mere accidents, because the properties of these changes suggest a kind of progressive directionality associated with organization.

As highlighted earlier, some common change theories can be invoked in explaining the changes experienced by the case organizations discussed here. However, this paper is not concerned with what the conventional theories explain. Instead it is interested in the troublesome aspects of change in these organizations, which are not readily explained by strategic choices, punctuated equilibriums, institutional pressures, biological survival metaphors and others. The changes of interest are characterized by properties associated with emergence. Obscuring the analysis of these apparently self-organized changes was the presence of management driven change initiatives. Thus, emergent change manifested despite the presence of deliberate change interventions. It is useful to map other properties of change that were revealed in the original study in order to place the 'anomalous' changes in perspective.

Properties of change

Organizational governance was viewed as the most important area for structural change. While vigorous political combat ensures periodic changeover for most boards of management, even those respondents serving on boards argued that board structures are typically unwieldy. They cited the difficulty of establishing a long-term agenda when short-term policies continually fluctuate because of changing board politics. Nearly all respondents claimed that slow decision-making in particularly large boards of management can decrease organizational responsiveness, and thus, change management frequently revolves around variations to the structure of these boards. This rigidity in board maneuverability tends to constrict organizations in their change activities, in particular making them reactive to circumstance. The assumption that strict policies of governance lead to high levels of organizational control can backfire because as Begun (1994) has cautioned, the assumption of linear causality from policy can result in the opposite effect being manifested. Many of the case organizations were victims of this causal mentality, their regimented structures of governance rendering them unresponsive to the vagaries of environmental change.

It has been remarked that organizational innovation occurs in the delicate balance between rigid structure and unbounded chaos (Pascale, 1990). Governance systems in the case organizations tended to represent this structural inflexibility, but the implementation of policy is discharged by professional managers. Of course, changes to structure pivots upon the actions that a board may initiate. Sometimes, however, instead of attempting to rationalize, restructure or challenge the board's authority, organizations mobilize additional, often temporary members to board service. In other words, change management means establish-

ing subcommittees, action groups and project teams. These 'action' groups set about reviewing the systems governing product quality or service delivery, and work in collaboration with management.

Some organizations attempt to gain competitive advantages by modifying the relationships and hierarchal reporting mechanisms between their employees. Structural change may be seen primarily in the form of the redistribution of personnel with the aim of maximizing their productivity and efficiency. One of the most prevalent methods this group highlighted to improve employee productivity, involved decreasing total staff numbers, a process described in management circles as downsizing. Rationalizing staff and using the remaining personnel to cover the subsequent gaps, was considered an effective cost-cutting strategy.

In theoretical terms, strategy means an examination of organizational objectives and the degree to which the current range of services (and products in the case of some sport organizations which rely heavily on merchandise and equipment sales) help achieve these targets. For example, one respondent explained how their organization may decide that meeting their membership goals may be easier if they introduce new services that may appeal to a group amongst the community who are under-represented in membership. It is at this stage where management begins to encounter resistance.

Obstacles to change were apparent in the form of both staff and member/fan reluctance to endorse changes from conventional operations. According to some respondents, these obstacles were particularly intimidating when the conceived changes involved a major shift in ideology or positioning. For example, a proposal to change a sport organization's winter competition from outdoors to indoors, may be met with moderate opposition, while a club suggestion to merge with another club was viewed by constituents as unthinkable. While self-organizing behavior may be a natural phenomenon, it is worth remembering that barriers to its emergence can be found in bureaucratic structures (Coleman, 1999).

Over half of the respondents specified that the most successful change programs first tackle values, or what may also be referred to as organizational culture. This is because they recognized that underpinning every strategic effort, service delivery mechanism and structural design is a strong set of collective beliefs and expectations, which bind an organization to its history and traditional operational practices. Without changing the values that fasten an organization to these old behaviors, no amount of other changes will endure. This perspective is consistent with the conventional or-

ganizational theory wisdom (Slack, 1997). However, it does not explain some changes recorded in our data.

Emergent change

So, on the one hand there is structural rigidity including a propensity toward downsizing and little proactive strategic effort, both of which are mired in cultural values that reinforce inertia; when change is introduced it comes about in a strict, narrow and highly structured form. But, on the other hand, there are still examples of emergent change that take place irrespective of this inflexibility. The salient question concerns how these examples of emergent activity have slipped through the controlled processes and structures gate-keeping change.

When the results of the study reported in this paper were first reviewed, it was noted that there were some changes that occurred in the case organizations without causal explanation. For example, all other changes could be traced to their logical antecedents, typically claimed under the responsibility of one of the organization's management staff or board of management. Most of the unexplained changes could not be traced to the cause, but several that were, provide prosaic and suggestive examples of how complexity theory may be helpful in understanding these organizational changes. Three examples are considered here.

The first example involved a change in the way an organization's sport merchandise was distributed. Although the 'standard' policy was to sell merchandise from the club office exclusively, as a result of an 'accidental' change where a mail order was accepted and discharged promptly by an unknowing work placement student, and a volunteer delegated the responsibility of managing the 'store', sales of merchandise have since almost doubled as additional mail orders have arrived and been transacted. By the time the responsible manager was made aware of the situation it was too late and the flood of new mail orders promised much needed revenue. In this instance, the combination of a volunteer and a student worker made a simple decision with significant consequences. Their decision was not recorded and no managers were informed. This was a change that emerged from the 'bottom-up', and if revenue is an appropriate measure, it was successful.

This example has some overtones of what Stacey (1996) referred to as the difference between ordinary and extraordinary management. At the ordinary level, managers make day to day decisions based on the common culture of the organization - the shared belief, if you will, of where and how the company should operate and progress. At the extraordinary level, managers recognize that it is the interaction of varying groups, ad-hoc meetings, task teams and other informal mechanisms that encourage unpredictability.

Such emergent changes are characterized by the difficulty in tracing their source and consequences. They can also be easily concealed by an organization's institutionalized practices, particularly when no one can explain why a certain procedure is employed, or how it first began. They are not always overtly related to overzealous volunteers, although the very nature of volunteering suggests a potential complexity explanation.

Every sport organization in the sample, and in general within the Australian sport industry, could not function without the commitment of volunteers. Hundreds of volunteers are therefore essential contributors to the successful delivery of sport competitions and other sport-related services. But these volunteers do not seamlessly fit into the increasingly corporatized structures of Australian sport organizations. For example, managers have difficulty establishing lines of accountability and reporting. As in the previous mail-order merchandising example, volunteers have disparate views on what is worth reporting and what is not. Furthermore, managers do not necessarily deal with the same volunteers on a regular basis. They come and go; some are formidably committed while others are quite capricious. When specific instructions are given by managers or other paid employees, some follow with bureaucratic efficiency and others do what they think is best. As a consequence, the collective behavior of this dynamic group is difficult to predict.

The combination of the changing composition of volunteer groups, their desire to make a contribution, little if any training, and vague instructions, all encourage volunteers to make minor, seemingly inconsequential changes to operational activities. Their choices act a little like mutations in a kind of neo-Darwinian process of selection. Many changes are made, most come to nothing in either a positive or a negative way, and some stimulate a cascade of further more consequential changes because they have matched a niche of importance. Unlike Darwinian selection, however, the interactions of complexity have intervened to produce order (Kauffman, 1994). In other words, order is not an accident.

Thus, the changes to the invoicing forms, the minor changes of pricing and the reorganization of the merchandise stockroom were all inconsequential, but sending a single package of merchandise through the mail in response to a request that should have been rejected, ended up stimulating a chain of events that resulted in a doubling of merchandise revenue.

There are several links to complexity theory that are useful in explaining this form of change. First, volunteer activity that stimulates organizational change demonstrates emergent properties. These 'bottom-up' changes belie prediction and occur despite regular shifts in the composition of the volunteer workforce. Secondly, following on from the unpredictability of emergent change, it is also impossible to predict which ostensibly trivial changes will cascade into substantial effects. Finally, the study of individual volunteers (although not the purview of this paper) may not yield explanations to the first two issues, those of emergence and unpredictability, suggesting that the macro activity is not reducible to its micro units.

A second example highlights emergent properties in the process of innovation and program development coming about from the spontaneous creation of informal project teams, which pursued a range of projects that would not necessarily have been immediately sanctioned by the respective boards of management without further investigation. However, the members of the informal project teams, all of whom were paid, professional staff, chose to remain tight-lipped about their activities until the outcomes were known. While many of the new initiatives were not successful and faded away, a number were successful, and an even smaller number were wildly successful. Based on the number of new initiatives introduced, and their success rates, it is unlikely that the project teams were able to predict what would work and what would fail. In the end, however, policymakers at the board of management level could only point to successful initiatives, but were unable to explain how they came about or, beyond the most simplistic links, explain their relationship to the organization's strategic documents.

A third example illustrates aspects of self-organization amongst the fans and members of a number of the sport teams in national league competitions studied here. Although no facilitation was provided by the organizations in question, scores of fans had found each other and had formed highly specific supporter groups. These ad-hoc, informal groups subsequently purchased special merchandise, tickets and team memorabilia that now contribute healthy sums to the organizations' revenues. Of course, self-organization amongst sport fans is hardly a revelation, particularly given the communications medium provided by the Internet, but the changes that these supporter groups encouraged have rarely been considered as a consequence of an emergent phenomenon. The case organizations had long abandoned notions of managing all of their disparate fan groups or of predicting their whims. Managers from these organizations had, through experience, come to recognize that some of the stronger fan groups could exert surprising amounts of political

power on the board of management for change, often of (or on) the team's coach. In fact, some fan groups had developed their own fashion apparel, some had cultivated alliances with government to facilitate the team's promotion, and others contained loyal members who held positions of influence in potential sponsoring corporations. Furthermore, some forthright groups had organized, determined their needs and informed the team of their requirements. In this sense, as Coleman (1999) has commented, the increased interconnectedness and self-organization of agents (in this case fans) has enabled their collective ideas to be communicated and converted into new products and services that the organization would not have invented independently. From the chaos of fandom to the passion for the team, emergent, self-organized behavior is fundamental to the success of many sport organizations.

In each of the three examples, emergent behavior has been observed without any deliberate facilitation. The changes themselves had been largely rationalized away by respondents as 'accidents' or areas of uncertainty. After all, it is difficult to isolate the cause of every change. However, therein lays one the advantages of employing a complexity theory interpretation of unintentional stimuli for change. While some change clearly comes about through institutionalized pressure, environmental change and even out of survival necessity, these stimuli are external to organizations. Complexity theory, particularly through the concept of emergence, can reveal circumstances where stimuli for change is internal and unintentional, a combination that has received little exposure in application to change management in sport organizations.

Identifying the relationships between emergent behavior, intentional change interventions and existing organizational structures, systems, strategies and culture remains difficult. One suggestive relationship is noteworthy. Emergent behavior was identified in three major constituents of sport organizations: volunteers, managers and fans. The most identifiable emergent behavior was found amongst volunteers and fans. Although not necessarily confined to one part of the organization and its particular structural properties, there are some parts that appear more encouraging. For example, volunteers typically work in 'loose' structures with little guidance or supervision. Sport fans operate in an environment with only self-imposed structural boundaries. Both of these groups exhibited the most emergent activity, and of these, sport fans demonstrated the greatest. The, at times, chaotic turbulence of sport fan activity also seems to give rise to patterns of self-organization. Marion and Bacon (2000) argued that loosely coupled structures - ones where components of the organizational structure affect one another weakly - allow organizations time to adjust

to environmental shocks. Similarly, Coleman (1999) advocates the creation of "organizational arrangements that do not inhibit evolutionary change and that accept discontinuous change in the environment as entrepreneurial opportunity" (p. 38). In other words, change is encouraged when organizational design is there only to gently direct informal behavior toward goals. Pepper (2002) has counseled that leaders and managers cannot hope to exercise control over organizations that comprise independent minded professionals. This leads to too much change which can be disruptive and totally negative.

Emergence was not observed amongst the tightly constrained volunteers of boards of management. This reinforces the possibility that emergence is not intrinsic to certain kinds of workers, in this case volunteers. Respondents believed that experimentation in this group was uncommon, and as such may explain less emergent behavior from management. Some changes were seen to occur spontaneously as errors and some managers ignore some of the constraints of their positions some of the time. Perhaps there is a need for a level of critical complexity that is not met by the interaction of some groups like boards of management; they perceive that there is no room for flexibility or experimentation. For example, complexity theory explains how energy imported into a system, in this case a sport organization, coupled with adaptive tension, leads to the creation of emergent behavior (McKelvey, 1999). Providing adaptive tension is present, McKelvey writes, critical complexity is formed, like a critical mass in a nuclear reaction.

It should be noted that other ostensibly unintentional changes were recorded in the case organizations, but causality was impossible to specify, in part because the moment of inception or the triggering decision was not discovered. This in itself might be suggestive of emergent activity, although its study was obfuscated by no shortage of managers willing to accept credit for successful changes post hoc that occurred within their areas of responsibility. On top of this add the further complication that some of the spontaneous change occurring from the bottom up was unwelcome to managers because they did not initiate it or sanction its progress. They do not know how to control new forms of activity at the coal face of the organization and have no experience in filtering emergent practices. Some emergent practices were therefore viewed as subversive.

Conclusion

This paper records an attempt to ascertain the explanatory power of complexity theory, and in particular emergent behavior, on hitherto unexplained and apparently unintentional change occurring in a sample of Australian sport organizations. Several examples illustrated the presence of emergence, where this change could be traced back to a trigger event. Present in these changes were several important features: First, triggering decisions or actions were difficult to isolate and it was impossible to predict which would cascade into significant change events. Secondly, the study of individual organizational members, irrespective of their position, was inadequate to explain why the emergent change occurred. For example, individual sport fans who were quietly spoken could become raging lunatics when placed in certain circumstances. Thirdly, while there is an element of randomness in the chaos of organizational activity, some change was seen to come about that was unmistakably progressive, and yet was still essentially unintentional. Finally, some of the emergent change was quashed by senior management who viewed it as undermining.

The relationship between intentional change efforts and emergent change remains unclear. However, the evidence implies that looser organizational constraints may encourage emergent behavior. This may also suggest the utility of techniques such as empowerment. It also implies that learning organizations are more complexity aware, as they facilitate adaptive developments. Further study into the conditions surrounding unexpected change is needed. This study would suggest that accidentally or otherwise, organizations that achieve unexpected but successful results engage in a number of common activities such as accidentally or deliberately working on the edge of chaos, working within the informal relationship system and accepting the growth of complex systems from simple systems. As a consequence it might be somewhat dangerous for managers to make decisions based upon linear assumptions about where they think the organization should head. Stacey (1996) predicted that making changes could lead to unplanned consequences. To that end, perhaps a good change manager determines what output or final product he or she wants and allows the system to determine how that is obtained. His or her task is to constantly reiterate to all sections of the organization what needs to be achieved, and to promote the conditions that allow the change to take place. In other words, to build vision rather than plans.

This paper has identified some emergent behavior in sport organizations that was originally considered unintentional, and therefore random change. The examples provided here illustrate a level of self-organization that undermines explanations of random change. However, it is worth acknowledging Cohen's (1999) caution, that sometimes complex systems approaches fit data too easily. Nevertheless, it has employed complexity theory as a device to

explain some unclear behavior. The findings here do not diminish the importance of other theoretical perspectives for explaining change. Indeed a consortium of conventional theories goes a long way toward illuminating both intentional change and change arising from unintentional and unforeseen stimuli. However, complexity theory has added an additional dimension to our range of analytical options where some forms of change were initially inexplicable.

References

Amis, J. and Slack, T. (1996). "The size-structure relationship in voluntary sport organizations," *Journal of Sport Management,* 10(1): 76-86.

Anderson, P. and Tushman, M. (1990). "Technological discontinuities and dominant designs: A cyclical model of technological change," *Administrative Science Quarterly,* 35: 604-633.

Beeson, I and Davis, C. (2000). "Emergence and accomplishment in organizational change," *Journal of Organizational Change,* 13(2): 178-189.

Begun, J. (1994). "Chaos and complexity: Frontiers of organization science," *Journal of Management Inquiry,* 3(4): 329-335.

Brown, S. L. and Eisenhardt, K. M. (1997). "The art of continuous change: Linking complexity theory and time-paced evolution in relentlessly shifting organizations," *Administrative Science Quarterly,* 42: 1-34.

Child, J. (1972). "Organizational structure, environment and performance: The role of strategic choice," *Sociology*, 6: 1-22.

Cohen, M. (1999). "Commentary on the organization science special issue on complexity," *Organization Science,* 10(3): 373-376.

Coleman, H. (1999). "What enables self-organizing behavior in businesses," *Emergence,* 1(1): 33-48.

Cousens, L. (1997). "From diamonds to dollars: The dynamics of change in AAA baseball franchises," *Journal of Sport Management,* 11: 316-334.

Dent, E. (1999). "Complexity science: A worldview shift," *Emergence,* 7(4): 5-19.

Dolan, S., Garcia, S. and Auerbach, A. (2003). "Understanding and managing chaos in organization," *International Journal of Management,* 20(1): 23-35.

Goldstein, J. (1999). "Emergence as a construct: History and issues," *Emergence,* 1(1): 49-72.

Gould, S. (1980). *The panda's thumb.* New York, NY: Norton.

Greenwood, R. and Hinings, C. R. (1996). "Understanding radical organizational change: Bringing together the old and new institutionalism," *Academy of Management Review,* 21: 1022-1054.

Hinings, C. R. and Greenwood, R. (1988). *The dynamics of strategic change*, Oxford, UK: Basil Blackwell.

Huber, G. and Glick, W. (1995) (eds.). *Organizational change and redesign: Ideas and insights for improving performance,* New York, NY: Oxford University Press.

Kanter, R. (1989). *When giants learn how to dance,* New York, NY: Simon and Schuster.

Kauffman, S. (1994). *The origins of order: Self-organization and selection in evolution,* New York, NY: Oxford University Press.

Kikulis, L. M., Slack, T. and Hinings, B. (1995a). "Sector specific patterns of organizational design change," *Journal of Management Studies*, 32: 67-100.

Kikulis, L. M., Slack, T. and Hinings, B. (1995b). "Does decision-making make a difference? Patterns of change within Canadian national sporting organizations," *Journal of Sport Management,* 9(3): 135-153.

Kimberly, J. and Miles, R. (1980). *The organizational life-sycle,* San Francisco, CA: Jossey-Bass.

Kotter, J. (1990). *A force for change,* New York, NY: Free Press.

Laughlin, R. C. (1991). "Environmental disturbances and organizational transitions and transformations: Some alternative models," *Organizational Studies,* 12: 209-232.

Letiche, H. (2000). "Phenomenal complexity theory as informed by Bergson," *Journal of Organizational Change,* 13(6): 545-557.

Lissack, M. (1999). "Complexity: The science, its vocabulary, and its relation to organizations," *Emergence,* 1(1): 110-126.

Marion, R and Bacon, J. (2000). "Organizational extinction and complex systems," *Emergence,* 1(4), 71-96.

McKelvey, B. (1999). "Avoiding complexity catastrophe in coevolutionary pockets: Strategies for rugged landscapes," *Organization Science,* 10(3): 294-321.

McKelvey, W. and Aldrich, H. (1983). "Populations, natural selection and applied organizational science," *Administrative Science Quarterly,* 28: 101-128.

Meyer, A., Goes, J. and Brooks, G. (1993). "Organizations reacting to hyperturbulence," in G. P. Huber and W. H. Glick (eds.), *Organizational change and redesign: Ideas and insights for improving performance*, New York, NY: Oxford University Press, pp. 66-111.

Miles, M. and Huberman, M. (1994). *Qualitative data analysis*, 2nd ed., Thousand Oaks, California: Sage.

Miles, R. E. and Snow, C. C. (1984). "Fit, failure and the Hall of Fame," *California Management Review*, 26(3): 10-28.

Miller, D. and Frieson, R. (1984). *Organizations: A quantum view,* Englewood Cliffs, NJ: Prentice Hall.

Mills, R. (1994). "The professionalization of Australian sport: Practice and discussion," *Leisure Options,* 4(2): 43-48.

Molinsky, A. (1999). "Sanding down the edges," *Journal of Applied Behavioral Science*, 35(1): 8-26.

Pascale, R. (1999). "Surfing the edge of chaos," *Sloan Management Review,* Spring: 83-94.

Pascale, R. (1990). *Managing on the edge,* New York, NY: Simon and Schuster.

Pepper, A. (2002). "Leading professionals: A science, a philosophy and a way of working," *Journal of Change Management,* 3(4): 349-360.

Peters, T. (1987). *Thriving on chaos: Handbook for a management revolution,* New York, NY: Harper Perennial.

Peters, T. (1992). *Liberation management: Necessary disorganization for the nanosecond nineties*, London, UK: Macmillan.

Pettigrew, A. (1985). *Awakening giant,* New York, NY: Prentice-Hall.

Redfern, S and Christian, S. (2003). "Achieving change in health care practice," *Journal of Evaluation in Clinical Practice,* 9(2): 225-238.

Salem, P. (2002). "Assessment, change, and complexity," *Management Communication Quarterly,* 15(3): 442-450.

Slack, T. (1997). *Understanding sport organizations,* Champaign, Il: Human Kinetics.

Smith, A. and Stewart, R. (1995). "Sporting club cultures: An exploratory case study," *Australian Leisure,* December, 31-37.

Smith, K. and Berg, D. (1987). *Paradoxes of group life,* San-Francisco, CA: Jossey-Bass.

Stacey, R. (1996). *Complexity and creativity in organizations*, San Francisco, CA: Berrett-Koehler Publishers.

Strauss, A. and Corbin, J. (1990). *Basics of qualitative research: Grounded theory, procedures, and techniques*, Newbury Park: Sage.

Strauss, A. and Corbin, J. (1994). "Grounded theory methodology: An overview," in N. Denzin and Y. Lincoln (eds.), *Handbook of Qualitative Research,* London, UK: Sage Publications, pp. 273-287.

Tasaka, H. (1999). "Twenty-first-century management and the complexity paradigm," *Emergence*, 7(4), 115-123.

Thibault, L., Slack, T. and Hinings, B. (1990). "Professionalism, structures and systems: The impact of professional staff on voluntary organizations," *Journal of Sport Management,* 4: 12-21.

Tushman, M. L. and Romaneli, E. (1985). "Organization evolution: A metamorphosis model of convergence and reorientation," in L. L. Cummings and M. Staw (eds.), *Research in organizational behavior*, Greenwich, CT: JAI Press, pp. 171-222.

Westerbeek, H., Shilbury, D. and Deane, J. (1995). "The Australian sport system, its history and an organizational overview," *European Journal of Sport Management*, 2(1): 42-58.

Aaron Smith is an Associate Professor in the School of Sport, Tourism and Hospitality Management at La Trobe University, Melbourne, Australia and is a director of the Dutch-Australian consulting company *Manage to Manage.* He has consulted extensively to a diverse range of organizations including multinational corporations, professional sporting clubs, national and state organizations, local government and private enterprises. He is the author or coauthor of five books including, *Managing Organizational Change.*