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ABSTRACT

This paper argues that chaos theory may be a an appropriate framework for strategic planing in higher education and presents a brief case study of a strategic planning process underway at Blue Ridge Community College (BRCC) in Virginia where chaos theory is in use. Chaos theory holds that many seemingly random activities and systems evidence complex, replicated patterns. The behavior of these systems is nonlinear, that is, behavior feeds back upon itself and modifies the patterns. Further, predictability of the system's behavior is restricted to a relatively short time frame. Implications of chaos theory for strategic planning include the following: (1) the ideal outcome of planning is planning; (2) planning begins with a distillation of the institution's key values and purposes; (3) the widest possible universe of information should be made available to all members of the institution; (4) dissent and conflict are creative, healthy, and real; (5) linear patterns do not work in strategic planning; (6) institutions should budget fiscally and psychically for failure; (7) initial time investments are recouped with interest in the future; (8) the executive is not demoted or minimized but is ultimately empowered by the process; and (9) the future cannot be predicted beyond a most modest time frame. (Contains 29 references.) (JB)

THE IMPLICATIONS OF CHAOS THEORY FOR STRATEGIC PLANNING IN HIGHER EDUCATION

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INTRODUCTION

Strategic planning in higher education received an early definition and a strong boost from George Keller with the publication in 1983 of *Academic Strategy: The Management Revolution in American Higher Education*. The author later estimated that while no more than a dozen of 3400 colleges and universities nationwide were engaged in strategic planning at the time of the book's publication, a decade later perhaps a quarter of those institutions were engaged in strategic thinking and acting. Yet he also acknowledged that a considerable number of initial efforts had failed (Keller, 1993). Jones (1990) was more pointed. His estimate was that for every three institutions which had initiated a planning process in the 1980s, two had fallen away from it and had gone back to "business as usual" (p. 52). A study published in 1994 by the American Council on Education (Schuster et al.), inspired by Keller's work and seeking to examine the state of strategic planning as evidenced on eight campuses, found mixed results and some outright failure.

Strategic planning enjoys a longer and more storied history in the corporate setting than in higher education, and so Henry Mintzberg's publication in 1994 of *The Rise and Fall of Strategic Planning* is of interest. The book is essentially a meta-analysis of studies on strategic planning and its widespread disappointments in the corporate world. Mintzberg suggested that the mid-90s were an appropriate time for the publication of the book and his prescriptions for strategic planning's revival. Had he published earlier, his points might well have been lost in the 1980s' backlash against strategic planning.

A framework which might yield prescriptions for more successful strategic planning in higher education is suggested by chaos theory. Chaos theory may affirm prescriptions for successful planning as put forth by Mintzberg, Keller, and others, and may advance our understanding of planning's dynamics, limitations, and potentials.

Following is a brief explanation of chaos theory and some of its main tenets. The author then postulates implications for strategic planning that

are suggested by a consideration of chaos theory. Finally, a brief explanation is made of the strategic planning process currently underway at Blue Ridge Community College in Virginia, a process suggesting a strong and successful use, albeit implicit, of chaos theory.

CHAOS THEORY

Chaos, in the physical sciences, is not the random activity that the term's common use suggests. Chaos theory, instead, holds that many seemingly random activities and systems in fact evidence complex, replicated patterns. The behavior of these systems is nonlinear, that is, behavior feeds back upon itself and modifies the patterns. Further, predictability of the system's behavior is restricted to a relatively short time frame.

Chaos theory's roots in science go back more than a century to Henri Poincaré's proof that the gravitational and orbital behavior of bodies in the solar system could not be explained only with simple, Newtonian, linear physics (Hayles, 1990). But ongoing attention to chaos theory is broadly considered to have begun with the work in more recent decades of MIT meteorologist Edward Lorenz.*

Lorenz had been working on computer models of the weather in order to enhance predictability. In one noted episode from the early '60s, he had entered a number of weather conditions into a simple computer and graphed the resulting weather patterns. He sought to replicate the patterns, but this time rounded the mathematical measurements of weather conditions to three decimal places instead of six. He expected only slight deviations in his findings, and for the two graph patterns to reflect similarities. Instead, after only a few iterations, the patterns began to vary greatly from initial findings, to the point of no correlation at all. Yet within this seeming randomness, boundaries existed on the behavior of the system, and certain weather patterns were repeated. These are conditions which characterize actual weather (Gleick, 1987).

Chaotic functions demonstrate *extreme sensitivity to initial conditions*. Two computer simulations of the solar system were conducted

* Ironically, the Soviets made substantial, independent progress in the advancement of chaos theory after World War II, but much of this research was unknown in the West until there were more exchanges of scientific information made possible by thaws in the Cold War (Gleick, 1987).

by MIT, each seeking to predict the position of the planets 850 million years in the future. The second simulation varied from the first only by moving each planet's starting position by one-half millimeter. Pluto is the planet most irregular in its solar orbit; the change of just half a millimeter in initial conditions changed Pluto's eventual position between the two simulations by 4 billion miles (Smith, 1995).

Chaotic systems also have *extreme sensitivity to influx.* Following from Lorenz's work, this notion is popularly called *the butterfly effect,* where the flapping of a butterfly's wing in Asia may eventually alter the course of a tornado in Texas (Gleick, 1987). This concept varies from extreme sensitivity to initial conditions only in the existence of input at the commencement of observation or during its course.

The explanation of the importance of small factors comes through the circumstance that chaotic systems are dependent upon *feedback.* As opposed to Newtonian concepts which more clearly differentiate between cause and effect, feedback is the notion that an effect becomes part of the cause in subsequent *iterations* of the pattern. Depending on the presence and nature of the iterative pattern, small factors can--but not necessarily will--become multiplied over time. Senge (1990) explored this concept as related to organizations in *The Fifth Discipline.*

What, then, allows chaotic systems to develop any sense of pattern, to stay within outer boundaries? It is the existence of *strange attractors.* Attractors are those elements in a system which have drawing or organizational power. A pendulum swinging in a simple back-and-forth pattern attracts toward gravity and its lowest point, and eventually stops absent the input of additional energy. The presence of multiple attractors, while establishing boundaries on a system, results in unstable, complex patterns, with the attractors acting upon one another, and demonstrating greater sensitivity to influx. It is the presence of strange attractors that also gives chaotic systems the quality of *self organization,* the ability to recreate order and pattern, at least temporarily, despite continuous compensation for internal and external shocks to the system, or turbulence (Parker & Stacey, 1994).

Chaotic systems demonstrate *self-similarity* at their various levels. In natural systems, self-similar structuring, called *fractals,* is evidenced in cloud formation, plant structure, landscapes, circulatory systems, wherever

chaotic organization itself is evidenced. A snowflake is a familiar fractal structure: at ever closer microscopic examination, the basic pattern is continuously repeated (Wheatley, 1992). Schwartz and Ogilvy (1979) described this structural principle as holographic, in which the whole is contained in the part. Wheatley, in *Leadership and the New Science*, an important work on the adaptation of chaos theory to organizations, wrote that "the best organizations have a fractal quality to them. An observer of such an organization call tell what the organization's values and ways of doing business are by watching anyone..." (p. 132).

To summarize, a chaotic system is one in which apparently random activity is in fact complexly patterned. Patterns, created by attractors, are disrupted and modified by the presence or influx of smaller or greater levels of turbulence. Attractors work to keep the system within boundaries. Chaotic systems demonstrate self-similarity, or fractal structuring, at various levels of the system. The infinitely varied interactions of attractors and turbulence make pattern predictability difficult in the near term and impossible over the long term.

Investigators in fields as varied as astronomy, meteorology, geology, ecology, and quantum mechanics, to name but a few, have verified chaotic patterns and constructed mathematical formulae to describe them (Newman & Wessinger, 1993). Chaos theory in social systems, many of which evidence anecdotal characteristics of chaos, has been more difficult to document, largely because of a lack of quantification methodology. The application of chaos theory principles to such systems remains controversial. But in disciplines such as economics and electoral political science, both of which yield enormous quantities of numbers, chaotic patterns have been confirmed and described in formulae (Gleick, 1987; Priesmeyer, 1992; Brown, 1995). If we accept that chaos, though it may be difficult to mathematically document and measure in social systems, has been verified in enough social system circumstances to justify the analysis of other systems through its lens, then it is appropriate to consider specific tenets of chaos theory which may have bearing on the dynamics of human organizations and activities.

IMPLICATIONS OF CHAOS THEORY FOR STRATEGIC PLANNING

• **The ideal outcome of planning is planning, not a plan.** Dwight Eisenhower was more direct: "Plans are nothing. Planning is everything" (Keller, 1983, p. 99). Keller (1983) noted that strategic planning is not the production of a blueprint, of a fat, detailed document. Rather, is it a strategic direction and central strategy, which adjusts to changing conditions. America's success in World War II was made possible, in part, by the execution of countless small and large operations, many of which required detailed and sequential plans. But the overall plan for the deployment of finite resources, the strategic initiative, was surprisingly simple: defeat Hitler, and then turn attention to Japan.

This is not to suggest that plans should not produce goals and targets for an organization. Mintzberg (1994) is critical of post hoc rationalizations of failed planning efforts in the planning-itself-is-the-goal vein. Yet it is important to note that the failures of which he speaks are products of overly detailed efforts, constructed by management fiat and heavily dependent upon narrowly considered and shaky data. As to simplicity, Mintzberg wrote: "The more elaborate the planning procedures become--in response to the failure of the simpler ones--the greater seemed to be their failures" (p. 295). Mintzberg ultimately argues for planning that emphasizes process ahead of product.

Large, detailed plans, issued on a long time horizon of five, ten, or more years, are common in higher education. Further, they are sequentially structured, with each step dependent upon the completion, within a specified time frame, or precedent steps. This is, suggests one author, somewhat like playing a game of pool by specifying, before the commencement of play, each and every shot through the sinking of the eight ball (Priesmeyer, 1992).

Chaos theory tells us that because of the impossibility of long-term predictability, plans should be general, flexible, and relatively detail-free. Detailed operational plans subordinate to the strategic plan can be brought to and from the stage as warranted.

• **Planning begins with a distillation of the institution's key values and purposes.** These elements are not dictated from above, but discovered from within. In the paradoxical context of chaos theory, they provide a constant source of reference but are always open to challenge and

modification. This process, within the context of chaos theory, is the discovery of a system's strange attractors, those principles which organize the system despite turbulence, establish its boundaries, and give it a general direction for the future. The strange attractors allow the actors within the system to make decisions consistent with the organization's collective identity, purposes, and goals, and to make decisions about the deployment of finite resources.

If colleges and universities are chaotic systems, then the ideas of importation of principles, or their imposition by executive fiat, are alien to reality. Strange attractors already exist in the system, chaos theory states, and attention must be paid to them. Imposing new goals and purposes, without discovering and reconciling those already operational for the system actors, will result in an early separation of plans from reality.

In fact, a great multitude of attractors likely exist in any organizational context. The more that exist, the more likely there are to be attractors in direct conflict. Actors within a system responding to different attractors than those recognized or endorsed by planners can effectively change the direction of the system, and within the concept of extreme sensitivity to influx, change the plan to conflicting ends. Failure to recognize the existence of attractors operant at various locations within an organization also ignores the centrality of fractal structure. A college may profess dedication to the quality of teaching as a central principle, but unless this principle is a goal and motivator at all levels of the organization, it is unlikely that this central dedication will be reflected in the experience of students.

This discovery of strange attractors would rarely be accomplished by reference to a college's mission statement. As many have noted and we all likely have experienced, these documents are kitchen sinks of collected ideas and goals, good and bad, littered with platitudes, and with little sense of priorities. These attractors may be strange, but they are weak. Mintzberg (1994, p. 297) similarly decried the presence of "empty platitudes" at the heart of most planning processes.

Physical systems are typically characterized by only a few, strong attractors. As one example, a researcher at a nuclear physics lab in Los Alamos, New Mexico, started with randomly scattered, similar objects on a computer screen, and gave them but three rules: keep a minimum distance

from other objects, move at the same speed, and head toward the densest concentration in the vicinity. The pattern created was the flocking of birds (Waldrop, 1992). Flocking would be a difficult, unmanageable task if attempted somehow by external monitoring and control. Yet the system operates, simply and without fail, through the establishment of only a very few self-organizing principles.

• **The widest possible universe of information should be made available to all members of the institution. This universe of information includes ongoing, rich, and current feedback.** Keller's (1983) advancement of the concept of environmental scanning and information gathering as critical to good planning has become widely accepted. Where chaos theory perhaps advances the concept of information gathering and sharing is its emphasis on the importance of feedback. The discussion and creation of plans themselves are elements of the informational landscape. They create feedback loops, whether planners recognize them or not. Schuster et al. (1994) exaggerate the importance that Keller (1983) places on the need for secrecy and confidentiality in the deliberations of the Joint Big Decision Committee, Keller's generic name for a campus's central planning body. But chaos theory does support Schuster's argument for open planning. Chaos theory suggests that planning executed in secret or with an air of exclusion will deny itself the creativity, vitality, and connection with reality that open--that is to say, feedback-rich--planning processes enjoy.

The stereotypical view of military organization is that it is strictly hierarchical, with plans originating from above and executed without modification or questioning down the rank lines. But in fact the environment of the U.S. Army today is extremely turbulent: downsizing is massive, missions unforeseen a short time ago are regularly undertaken, wars are fought in the desert and other alien territory, and so on. An adaptive measure used extensively by the Army--where failure can be death--is operational feedback. After Action Reviews (AARs) occu. following virtually every training event or actual mission. Soldiers and officers gather to debrief and to discuss what just happened and how it could be improved. Management consultant Margaret Wheatley, observing these sessions, wrote that the process "has become so ingrained that during the Gulf War AARs would be held spontaneously in the rear of a truck--

called by anyone independent of rank" (1994, p. 52). How many of our planning and operational systems have any feedback mechanisms at all, let alone those as immediate and adaptive as ones used by the "rigid" U.S. Army?

Chaos theory suggests that virtually unimpeded access to information, including feedback, is critical to ongoing monitoring of the environment. But an unorganized avalanche of information can be as detrimental to the processing of that information as a deficit of its supply. The Internet and its information resources have been described as the world's largest library--where all the books have been dumped in a heap on the floor. Yet in the same way that Internet browsers and other organizational tools have helped us tame the disorder, so can internal, campus-based computer systems and e-mail networks organize and deliver information and opinion to desktops with minimums of deletion and delay.

• **Dissent and conflict are creative, healthy, and real. The absence of conflict is reductionist, illusory, and suspect.** Chaos recognizes and respects the power of turbulence. It is the essence of creativity in chaotic systems. Ideas uncontested are suspect in their power and frequently unable to withstand the inevitable influx of turbulence. Yet how much of our planning is characterized by a desire to minimize conflict, to subtly suppress dissent, and to reach early consensus? Keller (1983) noted this desire for tranquillity as a root of the smothering of organizational creativity when he quoted the president of Indiana University: "Many presidents spend much of their time trying to anger the fewest people rather than trying to produce something really good..." (p. 173). Keller further noted that many presidents see planners as creators of problems, not solvers of them.

Mary Parker Follett, an organizational theorist and consultant writing seven decades ago, distinguished our various ways of dealing with conflict as domination, compromise, and integration (1925, in Fox and Urick, 1973). Chaos theory would suggest that domination, the simple victory of one side over another, merely delays the turbulent effect of the losing side's position. Compromise, more ostensibly cordial, likewise delays or ignores turbulence, in that agreement is typically reached at a fairly low and superficial level, and leaves the turbulence as an unrecognized, background element. Integration, solutions in which the desires of all sides

have been met and creatively combined, is the creative resolution of conflict, and the resolution most consistent with chaos theory. Neither Parker nor any other observer would suggest that all conflict is resolvable by integration. But without recognition, even encouragement, of conflict, without all sides putting their cards on the table, integration is impossible.

• **Linearity doesn't work in strategic planning. It doesn't work in dictation--planning and plans imposed from above--or in collation--planning and plans created solely by the collection of unit information.** By this point in the argument, the reader may see the obvious incompatibility of top-down, executive-committee-dictated planning with chaos theory. Strange attractors are not identified, feedback is denied, faint recognition of the environment is inevitable, and the implementation of plans is made virtually impossible by the lack of fractal structure. But it may be less obvious that the planning structure opposite to dictation--collation--is equally unsuitable.

Collation is the collection of individual "plans" by the department, the collection of these departmental collations by the college or school, and so on up the structure, until they are united at the top level of the organization. As Keller wrote (1983), "A university is more than the aggregate of its parts" (p. 141). It is possible to mistake this sort of collation for a sort of empowerment, or a democratic process, but collation can at best only identify individual desires and directions.

Chaos theory would inform us that this process lacks the connectivity between elements of an organization that is inherent in systems. Collation without feedback creates only linear and upwardly directed information paths. Collation without feedback and the identification of organization attractors does not contribute to self-organization and sustained direction.

The type of bottom-up strategic planning element suggested by chaos theory is more akin to the "grassroots" model of strategy formation championed by Mintzberg (1994): "Strategies grow like weeds in a garden, they are not cultivated like tomatoes in a hothouse" (p. 287). Such strategies spring up unbidden throughout the organization, but they do not become organizational until they "become collective, that is when the patterns proliferate to pervade the behavior of the organization at large" (p. 288). Management's role, according to Mintzberg, is to recognize these emergent patterns and to nurture their growth throughout the organization. Chaos

theory would suggest that such a role is an acknowledgment of the centrality and power of fractal structure.

• **The institution should budget--fiscally and psychically--for failure. Pilots are alternate futures. Not all can be realized or succeed.** Universities are historically averse to change, even those changes which are ultimately and broadly adopted in higher education (Siegfried et al., 1995). This might be characterized as an overly developed aversion to Type I statistical error, that is, an aversion to making a change even when strong evidence exists that change is beneficial.

Yet strategic planning by its nature attempts to make some tentative decisions about and preparations for an uncertain future. As Keller wrote (1983), "...strategic planning increases risk taking. It fosters an entrepreneurial spirit, a readiness to start new ventures" (p. 142).

Chaos theory suggests that the predictive time line is shorter than the start-up and testing times of complex projects. Chaos theory suggests that strategic planning can at best identify likely futures, and not, through the compilation of adequate data, foretell the future through longitudinal projections. Therefore, tests and pilots should be launched, with the knowledge that not all possible or likely futures will come to pass. Even though strong data collection and ongoing feedback can result in what might be called "wise piloting," some pilots will fail.

Frank Schmidtlein (1989-1990) has confirmed what many of us have suspected from our more limited experience: there are precious few connections in most institutions between the strategic planning process and the budgeting process. In two nationwide studies of budgeting in which Schmidtlein was a principal investigator, not one person involved in budget negotiations consulted or cited a campus mission statement for guidance. As earlier noted, the mission statement is, on its own, a limited element in strategic planning, but it is a logical starting point. Schmidtlein also argued for some relaxation of two of conventional budgeting's strongest characteristics: rigid budgeting time frames and a virtually complete allocation of budget resources to designated purposes. This process tends to ignore the observation of one study participant: "What comes up is as important as what's planned. That's life" (p. 14). Keller (1983) recognized this in an element of his prescription that is perhaps less closely observed than other elements: "To foster change, have a venture capital fund ready to

support those on campus who are the most creative and entrepreneurial" (p. 169).

It is more difficult to document, but it follows that institutions are as psychically averse to piloting as they are fiscally averse to it. If we subtly punish or isolate those whose pilots seemed reasonable and which were blessed, but fail, and we quickly distance ourselves from failure rather than examine it for lessons, we discourage the experimentation necessary to discover the future.

• **The considerable expense of time on the front end is an investment. It is recouped, with interest, in the future.** There is no doubt that top-down, stripped-down, feedback-free planning is faster. This is a false economy. Fast plans may be convenient, even poetic, but without a rich understanding of the environment, the discovery of attractors, and the creation of iterative structure, they will, more often than not, fail. Time and resources will be inefficiently spent as institutional leaders attempt to impose a plan alien to the system's actual dynamics. Alternately, a plan developed from these dynamics, and not against them, will be more fully implemented, more reflected at fractal dimensions of the organization, more in concert with the organization's attractors, and more successful.

• **The executive is not demoted or minimized. The executive is the most critical shaper and champion of the process. Ultimately, the executive is empowered by the process.** All of this may suggest to some that the executive becomes figurehead in a planning process informed by chaos theory. James Fisher, himself a former president and a long-time commentator on the institution of the presidency, gave voice to the suspicion that constituent-involving processes are in fact an abdication of presidential power and responsibility (1994). "In a misguided sense of democracy" (p. 60), board members, faculty, students, and others are engaged in an "unending and totally unproductive morass of committee meetings, faculty meetings, formal and informal dialogues" (p. 62), leading to paralysis and undistinguished, lowest-common-denominator compromise. (Interestingly, Fisher describes one president who embodies his ideal of strong, independent leadership as an individual widely and warmly regarded for his ability of having "plenty of time to see everyone," and one who "encourages candor, even disagreement" [p. 63]).

The president active in the promotion and advancement of strategic planning may be seen as a strange attractor, a basic element in the formation of a system's patterns. He or she can speed or slow the process, give or deny it legitimacy, and provide energy to the process when necessary.

Ultimately, the president might be empowered by the process. He or she should have a more clearly defined mandate, and should be able to make decisions, hire and fire personnel, allocate resources, commence and terminate programs. The president should draw power, a greater level of consensus, and support for great operational leaps if he or she can tie decisions to the institution's goals and visions emerging from the chaos-informed planning process.

The "strong" president, one who acts in virtual sole proprietorship of power, one who enforces his or her will with scant regard for opposition, feedback or organizational attractors, has the potential to become an attractor of a different sort--a point attractor. Like a pendulum swirling toward a point of rest, the patterns of the institution become tighter and tighter, tending toward inertia. Feedback is of a different sort: lowered morale and commitment, leading to more rules and regulation, in a cycle that quickly overcomes all other dynamic inputs to the system. The actors on the scene become resigned to treading water instead of making waves (Platje & Seidel, 1993).

• **The future cannot be predicted beyond a most modest time frame. The future can be created, and time is an ally. This is the distinguishing context of human chaotic systems.** Much of the circumstance of unpredictability comes from our inability to discern which factors in our environment, which "butterfly wings," will be absorbed by the most powerful dynamics of the system, and which will gain great power, from iterative dynamics, far out of proportion with the seeming insignificance of their genesis. The American G.I. Bill was such a butterfly wing. The bill's most ardent supporters in the closing days of World War II believed its promise of unemployment benefits for veterans to be the bill's most significant feature. Few thought that many returning veterans would take advantage of the bill's educational benefits. Yet more than 2 million veterans jumped at the chance to attend college. More significantly, access to higher education in America was transformed, in the public's mind,

from a privilege for the few to an entitlement for virtually all people (Kiester, 1994).

Despite the difficulty of prediction, the certainty of uncertainty, it would be a grave error to take from chaos theory the idea that planning is futile, because the future is unpredictable. Rather, the primary lesson is that the future can be created. Conventional, linear planning is based largely on the assumption of high predictability. Linear planning puts an emphasis on trend lines, projecting them into the future, and tends to make insufficient accounting for the influx of turbulence, foreseen or not. Linear planning postulates a future far over the horizon, but it is rarely realized in any recognizable form. Directors of linear planning attempt to execute the future less than they attempt to create it, and they are often wrong. Priesmeyer, a proponent of nonlinear management, described "forecasting," a linear approach, as (p. 176) "the process of using historical data exclusively to make estimates of the future." Such approaches, he added, fail to recognize the presence of free will, and are therefore "naive for any system in which humans participate." Mintzberg touches upon this in his description of the "grand fallacy" of strategic planning: "Because analysis is not synthesis, strategic planning is not strategic formulation" (1994, p. 321). Analysis is decompositional, according to Mintzberg, and is therefore incapable of the creation of novel strategies.

The dominant "fact" of the planning future going into the '80s was a declining pool of potential students, which would result in the closing of at least 10%, and perhaps as many as 25%, of America's colleges and universities in the decade then ahead (Keller, 1983). The realized future was an increase in college enrollments through the '80s, and the survival of the great majority of the institutions placed on death watch. Linear planners took too few factors into account, including the power of creativity (Frances, 1989). They are dependent for their projections upon that which can be easily quantified (Wheatley, 1992).

Participants in nonlinear planning, by contrast to linear planners, come to realize that the future is an invention; the external and internal environments are strong creative elements of the future, but so are dreams, values, and ambitions. Metaphorically, the flutter of a wing can move not only the breeze but the system, particularly if applied with consistency and

in partnership. These "small" elements gain power over time, and can overcome substantial resistance.

CHAOS THEORY IN PRACTICE: A CASE STUDY

Chaos theory suggests many implications for strategic planning in higher education. But have these implications been evidenced in any real planning context? Will explicit guidance by the principles, or implicit compliance with them, actually improve a planning process, and plans? The experience at one college would suggest so. There, while the organization appears to the casual observer similar to other colleges, internally, "chaos reigns" (Levin et al., p. 11). Central values are identified and articulated, change is embraced, conflict is encouraged, hierarchy has limited power, information abounds, cross-functional collaboration is required, and the president is, according to three internal authors, including the president himself, "a whipless ringmaster in a three-ring circus. His only tools are his intellect, sensitivity, and vision" (Levin et. al, p. 14).

Blue Ridge Community College, Weyers Cave, Virginia, is a state-assisted two-year college with the mission of service to the northwestern Virginia counties of Augusta, Highland, and Rockingham. The college offers vocational and transfer programs ranging through the associate degree. It is a small institution of about 2400 students, and a full-time-equivalency of about 1200. The general pattern of recent years has been that of enrollment growth, but with recent, minor downturns.

When James Perkins assumed the presidency in 1989, coming to Blue Ridge Community College (BRCC) from another Virginia two-year college, where he served as dean of instruction, he encountered "a lot of anxiety about where the college was going" (Perkins interview*). Perkins was presented with a position paper, drafted by the faculty, and recommending directions for the coming decade. A faculty member put it more directly, calling the terminal relationship with the previous president "a rebellion" and the position paper with which Perkins was presented a "manifesto."

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* Unless otherwise noted, quotes from the case study are from interviews conducted at Blue Ridge Community College on February 1, 1996.

President Perkins began his presidency with conversations. "What the faculty really wanted was to have a dialogue with me about where the institution was going, what were my priorities, what were their priorities. We really had lots of conversations. I talked a lot about values. As a result of the dialogues, we determined that it would be useful to the institution, as a start, to get on paper what our values were."

The conversations led, over the course of about a year, to the drafting and approval of a values statement, a process in which the entire college participated. The values statement highlights five core elements ("BRCC values learning...access to educational opportunity...excellent performance...its internal environment...[and] its community.") Twenty-five subordinated, detailed statements gave more body to these values.

Subsequent conversations led to the communal drafting and production three years later, in 1993, of a vision statement. It's less than 150 words, yet Perkins describes it as "a little long." The process has progressed toward a more concentrated distillation of what's important at BRCC.

The college's mission statement is derived from the Virginia community college system's mission statement, and is broad and inclusive in its mandates. "It's a huge umbrella," said President Perkins, "which basically says we should be all things to all people....We've said, OK, but for Blue Ridge, what is our vision within that statement?"

The vision statement announces the college's intention to enhance its educational environment by the year 2000 through three primary initiatives: creating new and stronger partnerships that will enhance their students higher education and employment opportunities, becoming a model in the use of technology, and enhancing a sense of college community. Both the values statement and the vision statement were the products of long, drawn-out discussions and have been subject to revisitation on many occasions. But both have held virtually intact since their initial production.

The process and the statements have empowered the college and President Perkins to take specific steps in support of the college's direction. The college, at the faculty senate's initiation, has moved to a 100% merit-based reward and pay-increase system; as Perkins noted, "some get zero and some get nine (percent)." The change from across-the-board increases was based on the value and subvalues of "excellent performance."

Some reorganization has come from implementation of the statements. When BRCC's director of student services left, she was not replaced. Instead, her functions were put under the dean of finance and administrative service. Perkins made the move without a faculty vote, but only after a series of individual conversations and the establishment of a one-year trial period for the new arrangement. Among his intentions was the integration of functions and making the business process more seamless for students. "In many organizations I've been in," said Perkins, "there would been lines drawn and battles waged over that because its unusual and because there are good reasons why that's a lousy thing to do....I felt I had permission to act and that I would have (faculty and staff) support." Although the recombination is still in its trial period, it appears to be working, and even to have produced "unexpected positive results."

The distillation of values and goals has allowed the college to pass on opportunities, and the possible diversion of resources, which are not central to its directions. Despite strong pressure form the state to establish adult literacy programs at community colleges, and to some degree from within the college, BRCC chose not to sponsor such a program, but instead to support local community groups in the effort with the provision of space, expertise, and consulting.

The college's most recent planning product, approved by unanimous vote on February 13, was a strategic directions statement. "You'll note we specifically said 'direction' and not 'plan,'" said President Perkins. "What most people are used to," he said, "is a document of about 200 pages. This is about five." He noted of most longer plans, including an earlier, more detailed effort at BRCC, "the first six months, it looks great. The next six months it starts getting filed away, and in a year its out of date. The objectives were too specific, the time lines become obsolete. You've got this process that looks very rational, very linear, very realistic, and it just collapses under its own weight." The time frame of the strategic direction statement is 18 months, but Perkins said, "I suspect that after six months it will be rewritten. An 18-month period is helpful to us, but we have to realize that we shouldn't be bound to it, that we'll have to reassess it."

The strategic direction and other initiatives at the college are supported by a background of careful, detailed planning. The president relies heavily on a time/function management system called "management

subcycles." Even as the strategic direction statement was taking form, more detailed planning was taking place to support it, efforts such as planning for a fundraising campaign. But details and timelines, with a heavy emphasis on the immediate future, are segregated from the larger statements and the longer-term focus of people who are working on them. The details are almost exclusively administrative functions, with only occasional, ad hoc interest from planning committees.

The general planning process is supported not only by completely open meetings, but by a "liberation of information" (Levin et al., 1995). Virtually all information directly or tangentially relevant to planning activities is made available to the full college community. The primary mechanism for this is an internal e-mail system, upon which are posted, in both a timely and archived fashion, committee minutes, various proposals and reactions from individuals, key documents, information generated by environmental scanning, and so on. Every staff and faculty member has personal access to a computer, some of which are older machines, but all of which are connected to the communication network.

It is not a tranquil environment. Perkins spoke of "battles" in enacting some elements of the process. Bernard Levin, a professor of psychology, described committee meetings at places where there can be "shouting and screaming and blood all over the floor." Division Chair Paul Lee indicated that he and an administrator had "some words of prayer" when the administrator attempted to bypass the involvement of faculty in a key decision.

Hierarchy as an imprimatur of ideas or power is alien to the process. Levin said, "Traditional strategic planning has a committee at the top, with god sanctifying things. It's stratified by power and position. This is very different." When people contribute to committees, "you leave your [position] hat at the door." Ideas, not professional titles, are the tools of negotiation and discussion, he said. "If your idea won't stand up, then get another one," Levin said. But an idea pursued, and its champions, are not punished when it fails if the idea has gained support through the planning process. "The decentralized institution...promotes creativity...rewards effort...and celebrates successes. It views failure as a learning experience and a challenge" (Levin et al., p. 12).

All involved acknowledged the massive time investment inherent in such a planning process. But Perkins recalled his experiences at institutions where decisions were made administratively without constituent input. "The next six months is spent fighting battles with every group on campus about why it was so important that they do this. People chose sides, with some people not giving 10% to the effort." The realized alternative at Blue Ridge: "I have been creating for myself, and the institution has been creating for me, the permission to take some very large leaps once in a while." Levin et al. (1995) addressed this empowerment by distinguishing between the strategic planning process's "evolutionary" power and the executive's "revolutionary" power" [p. 9].) Levin, referring to the investment of time and energy, said, "It's either pay me now, or pay me a lot more later."

Trust is the base and the result of such a planning environment, confirmed and strengthened by the feedback of its success. "There's more behind this," said Perkins. "It's a trust element. I trust them, they trust me, and we know that we're all working for the good of the institution." Levin offered this comment, a fitting summary: "The process works if you trust people. The people we have here are very bright. You turn them on and they come up with some incredible stuff."

SUMMARY AND POTENTIALS FOR FURTHER INQUIRY

"Chaos and complexity theory invite us to explore the 95% of the organizational world that we have avoided because it is too dark, murky, and intimidating," wrote organizational theorist James W. Begun (1995, p. 334). Chaos theory, further, is not an analytical model imposed upon a system, but a description of its fundamental reality. The challenge, wrote Begun, is not to apply chaos theory, but to discover it and its dynamics within our systems. Ignoring it will enforce and expand the gap between the reality of our chaotic environments and the temporary comfort afforded by our linear models and structures. Further, chaos theory would suggest that systems dependent upon linear structure, such as many of our strategic planning programs, which encounter more and more external and internal turbulence and change, as we generally expect in higher education and society at large, will fail more often, at earlier stages of implementation, and with more dramatic consequences. Our linear

systems will not roll with the punches delivered by our environment and the realities of our organizations.

The case for the operational practicality of applied chaos theory in strategic planning will be strengthened if it is confirmed in a variety of higher education settings. It is the intention of the author to do so and, utilizing feedback, to modify appropriately the proposed implications of chaos theory for strategic planning.

Ultimately, the consideration of chaos theory in this context should be able to answer some fundamental questions: 1) Can chaos theory help us reach better decisions and pursue more fruitful directions in an uncertain future? 2) Can chaos theory assist us in arriving at desirable states in a more timely fashion, given the contrary elements of a more rapidly changing environment and the substantial, up-front time demands of a planning process informed by chaos theory? 3) Can chaos theory help to define fruitful and fulfilling roles, not only for the executive, but for us all, in strategic planning and organizational life?

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