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Chaos Theory and the Hollander Psychodrama Curve: Trusting the Process

RORY REMER

ABSTRACT. Both psychodrama and chaos theories address the complex dynamics of human interaction and change. When juxtaposed, not only can their commonalities be seen, but also each theory can contribute synergistically to the utility of the other. To accomplish that end, the author presents the constructs of chaos theory first. Then, the major constructs of psychodrama theory are reviewed, through the use of the Hollander (1969) Psychodrama Curve. Finally, each theory is employed to enhance the understanding and application of the other. The case is made that accommodating the melding of subjective and objective perspectives, sought by Moreno (1951), may finally be accomplished through the combination of the two theories. Particular attention is paid to the philosophical consistency of the theories. Two major conclusions are reached: Spontaneity is essential to dealing with dynamical systems; and trust in the process—psychodramatic and chaotic—is key to change involving human dynamical systems.

CHAOS THEORY DEALS WITH nonlinear, nonindependent systems. Although that statement seems esoteric and remote, it is not, particularly if the systems involve human beings.

Human dynamical systems—families, couples, groups, organizations, communities, individuals—are fascinating, complex, interactive, and unpredictable (Butz, 1997) and present exciting challenges to those who work with them. Because of the complicated nature of the systems, psychodrama has proved an exceptionally rich and effective method for approaching them.

The chaos theory and psychodrama theory are compatible (Remer, 1996), and each has much to contribute to our understanding and application of the other. My aim in this article is to illustrate that point and to examine the interface between chaos theory, described by Butz (1997) and Goerner (1994), and

psychodrama theory, depicted by the Hollander Psychodrama Curve (Hollander, 1969).

Chaos Theory: A Brief Exposition

For those readers not familiar with chaos theory (also termed nonlinear/nonindependent systems theory, dynamical systems theory, ecological theory, and complexity theory), a brief overview with illustrations may prove useful. Doing justice to the topic about which books have been written is beyond the scope of this article. However, familiarity with the primary constructs or terms involved is essential. I hope an introduction to the terms and their implications will be enlightening and encourage further exploration by the reader. For much more detailed explanations, I suggest articles and books by Crutchfield, Farmer, Packard, and Shaw (1995), Gleick (1987), Goerner (1994), Remer (1996), and Wildman and Russell (1995). In this article, I will address some of the most basic constructs—strange attractors, fractals, self-similarity, bifurcation, self-organization, and unpredictability.

Strange Attractors and Basins of Attraction

Strange attractors are focal points for patterns generated by dynamical systems. Their basins of attraction are the areas containing those patterns within their boundaries. Strange attractors and their basins are similar to homeostatic points in general systems theory. An example of a strange attractor and its basin is an open drain in a bathtub with the water running fast enough to fill the tub. Should an object such as a ping pong ball (buoyant but too big to be sucked down the drain) be dropped into the tub, it will continue to circulate in a quasi-predictable manner—predictable in the sense that it will not be able to escape the tub and so its general location is well established (at least until the tub is filled to overflowing); quasi in the sense that how near to or how far from the drain (strange attractor) it will be at anytime cannot be readily foreseen, particularly for far future times. Strange attractors and basins of attraction capture the actuality—consistencies and vagaries—of human behavior patterns.

Fractal Boundaries and Dimensions

Fractal boundaries are the irregular “lines” of demarcation between separate units. Fractal boundaries and their measure or dimensions convey, in a systematic (and possibly quantitative) way, that reality is rarely as clear cut as we picture it. Unlike the dimensions with which we usually deal, fractal boundaries can have fractional dimensions. Shorelines are good examples.

From a far distance (e.g., outer space), shorelines appear to be continuous, curved lines of long, relatively smooth segments. Walking the shoreline gives one a quite different impression. What becomes apparent is that all the seemingly long, smooth segments are actually made up of many shorter convoluted pieces. Measuring the overall length of the shoreline will vary with the “fineness” or applicability of the measuring instrument. Use of a yardstick and a micrometer often produces grossly disparate outcomes (e.g., measuring the distance around every indentation of every rock and pebble is not done very accurately, if it is even possible, with a yardstick). Fractals convey two very important concepts. First, what you see depends largely on your perspective (e.g., Remer, 1983). Second, accuracy of measurement often depends on the definition of the process—even though results may be internally consistent employing the same method of assessment, they can vary greatly, even by an order of magnitude, depending on the different approaches. Fractal boundaries and dimensions capture the fuzziness or gray areas of behavior patterns. In doing so, they also emphasize the impossibility of separate systems ever meshing perfectly (much like trying to glue two pieces of a broken cup together so the weld is not visible).

Self-Similarity and Self-Affinity

Self-similarity and the more general, inclusive term, self-affinity, denote the tendency for processes and other phenomena to have recurring patterns. The constructs of self-similarity and self-affinity capture the sense that motifs seem to be part of nature. Patterns tend to repeat themselves, not exactly, not perfectly, but still enough to be recognizable. Similarities, not only of boundaries but of patterns in general, have proved fascinating, valuable, and enlightening (Hofstadter, 1979). Parenting, both on a reproductive and a behavioral level, offers a good example. We tend to resemble our parents genetically, physically, and behaviorally. On the other hand, in every situation, as many points of nonsimilarity can be found as points of similarity. Behavior patterns have tendencies to repeat themselves, although not exactly. Over time and in situations and generations, consistencies can be found. And so can inconsistencies.

Bifurcation and Bifurcation Cascade

Bifurcation means splitting in two. When a process or pattern bifurcates, complexity is added to a system by the addition of strange attractors. Bifurcation cascade means that the splitting is happening at such a rate that no discernible patterns are in evidence. After a period of time, many natural processes tend to bifurcate as the type of process changes. Then, after another period of stability, another bifurcation takes place. As long as the bifurcations stay

within limits or happen at long enough intervals so that the system's resources can accommodate the new conditions gradually, stability can be maintained. If either of these conditions is violated, bifurcation cascade occurs. The system goes out of control; it becomes chaotic. Whereas such a state may seem catastrophic, it need not be. At that crisis point, the system must reorganize into a different, although perhaps similar, pattern, essentially creating a new strange attractor. Thus, the "confused" states can serve as opportunities for creative, functional change. Organizational growth can serve as a good example. If the tasks demanded of an organization exceed the capacity of it to adjust, overload (bifurcation cascade) causes the system to become chaotic. Possible solutions to restabilize the system are different forms of reorganization—new units established to handle new tasks, shifting tasks to different units within the organization, or farming out tasks to other organizations, which, in effect, produces a meta-organization. Bifurcation and bifurcation cascade encompass many of the notions that general systems theory addresses through positive and negative feedback loops. Conceptualizing these processes in discrete stages, however, provides a somewhat better grasp of the contributing factors and their interaction (i.e., how a new strange attractor might be the result of a system torn asunder by the interplay of numerous conflicting forces).

Self-Organization

Self-organization is the inherent tendency for dynamical systems in a chaotic state to form a new coherent pattern. An important characteristic of chaotic systems is their innate ability to reorganize, based only on the interactions of their components. Self-organization establishes new patterns of behavior, particularly after chaos has been reached, accommodating the new demands on the system. The example of an organization that has undergone bifurcation cascade, as noted previously, shows evidence of that attribute. However, it is not usually possible to predict exactly, if at all, how the self-organization will manifest itself.

Unpredictability

Unpredictability is the inability to describe with certainty the next state of a system, given the knowledge of its present state. One aspect of unpredictability, defined from a chaos theory perspective, is similar in sense to that conveyed by Heisenberg's uncertainty principle or Bell's theorem (Bell in Kafatos, 1989; Heisenberg in Price & Chissick, 1977); that is, everything about a system cannot be known to absolute certainty. I mentioned this aspect of unpredictability in discussing strange attractors, which I termed quasi-predictability. Another, more commonly known aspect, has been called "the but-

terfly effect" (Gleick, 1987). For example, a butterfly beating its wings in China might cause a hurricane in the Bahamas. Small differences in the initial conditions of a process can produce large differences in outcomes; conversely, large initial differences can have very little impact. This second aspect subsumes the concepts of equipotentiality and equifinality from general systems theory. Unpredictability goes far beyond these ideas and differs drastically when it conveys the humbling, daunting, realistic perspective of how little control or certainty of predictability we actually have.

The Hollander Psychodrama Curve: A Brief Review

Before presenting a comparison between chaos and psychodrama theories, I concisely review the latter theory. The Hollander (1969) Psychodrama Curve is an excellent vehicle for doing so. My brief exposition can serve as either an introduction or a refresher. The curve is also a graphic that illustrates the interface between chaos and psychodrama theories.

Hollander (1969) made a major contribution to clarifying the classic psychodrama process. He characterized and depicted the flow of a psychodrama session as a curve divided into three major segments—the warm-up, the enactment, and the integration. The curve is further divided into the components of each of the segments (see Figure 1). One note of caution, although the curve seems linear, at least along the time dimension, choices can be made to move nonlinearly (e.g., replaying a scene repeatedly or moving between segments) when deemed necessary. The interactions between and among roles/participants within segments are often nonlinear.

Warm-Up

The warm-up is a group-oriented stage. It comprises three aspects: encounter, starters, and sociometric process. Encounter allows the individual (self-self) and group (self-other) assessment of readiness for action. Starters are artificial methods—exercises, games, spontaneity tests, and so forth—to begin to engage group members in working together in the action process. The sociometric process accesses the telic connections extant to allow the identification of the group wishes, theme, and the sociometric star (protagonist). Through the realization of these three aspects, the group spontaneity is engaged for the ensuing enactment.

Enactment

During the enactment, which is predominantly protagonist oriented, scenes are set and anchored in time, auxiliaries are chosen, and action is engaged.

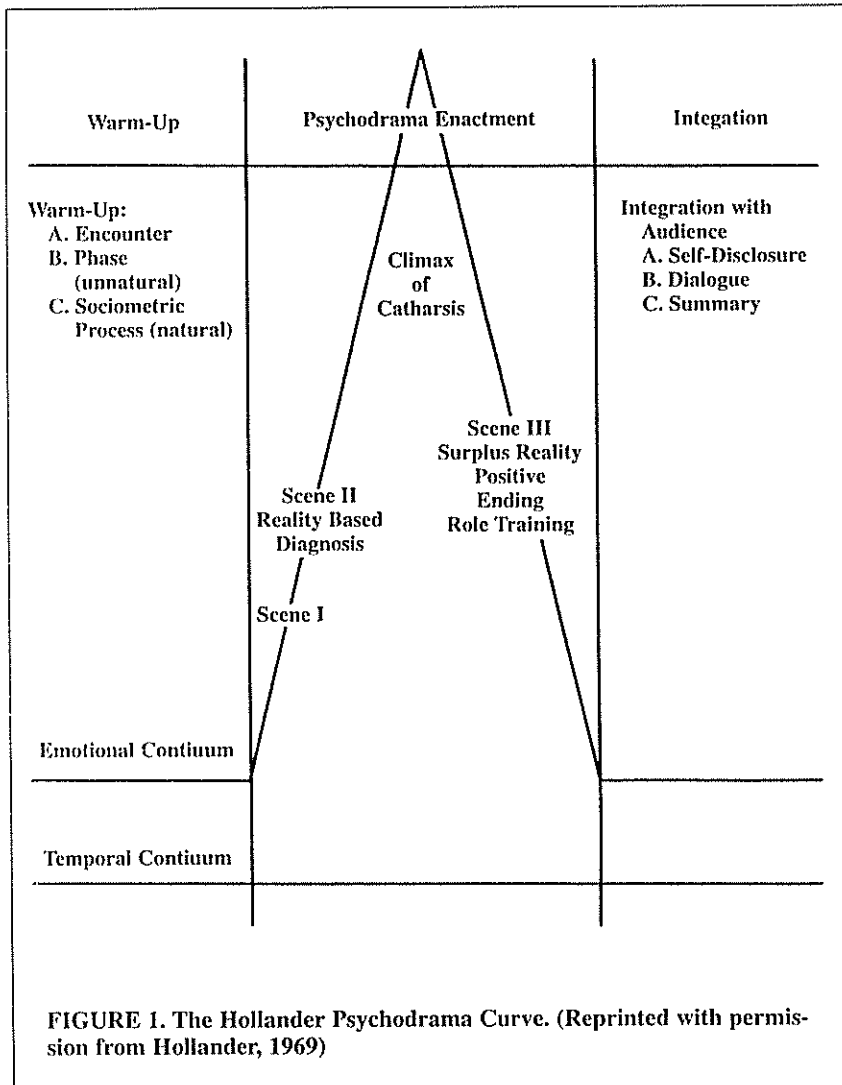


FIGURE 1. The Hollander Psychodrama Curve. (Reprinted with permission from Hollander, 1969)

The protagonist's reality (conserve) is displayed (first scene), explored (modified through interaction), and rewritten (surplus reality). The full resources of those involved aid in producing the release of energy (catharsis of abreaction) blocked (as indicated by act-hunger) so that a new cognitive structure can provide the basis for spontaneous action in the future. The process may appear linear from a time perspective, as the group moves from scene to scene. The experience of both catharses (abreaction, during the first part of the enact-

ment, and integration, during closure/surplus reality), not only for the protagonist but also for auxiliaries and audience members, may occur in any or all scenes.

Once the enactment, in its fullness, has reached a point of closure (at least for the moment), a time is needed to pull everything together and return to the present moment. Integration is focused on accomplishing that end.

Integration

Integration, again a group-oriented stage, is achieved through sharing (audience disclosure), group dialogue, and summary. Of the three, sharing is the most essential.

Although the enactment is focused on the protagonist, she or he is still representing the group theme. No one present during the enactment is uninvolved. As a result, emotional reactions are pervasive throughout the group. The sharing addresses two important considerations. First, the protagonist is reassimilated into the group, receiving emotional energy in kind for that which has been expended on the group's behalf. Second, group members, who may need to reach personal closure for the act-hunger the drama has triggered in them or for them, can seek and find needed support.

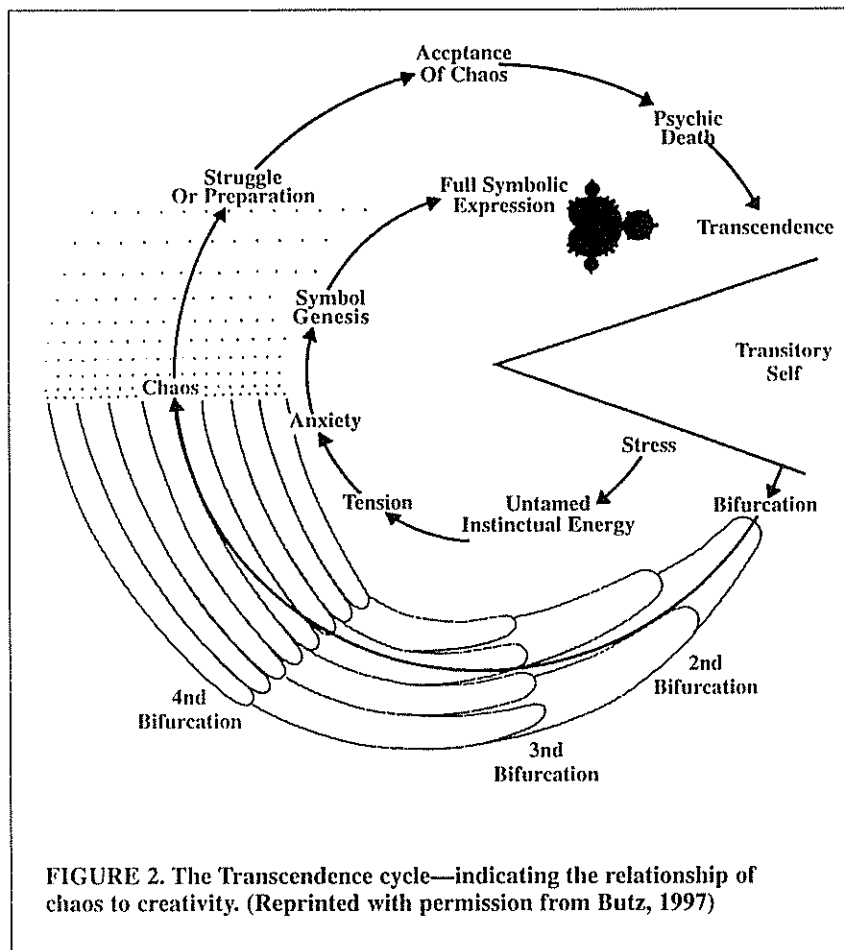
The group dialogue "is equivalent to group discussion, group psychotherapy, or didactic experience in group dynamics" (Hollander, 1969, p. 11). In this way (interpretations, analyses, questions, evaluations, etc.), the group reestablishes a sense of cohesion, through attention to all members.

The summary, presented by the protagonist, audience, and/or director, promotes a further sense of closure by presenting a complete view of the session. During both the summary and the dialogue, interaction is more cognitively oriented, reducing the level of emotion by allowing members to "get back in their heads" and anchor the learning that has taken place.

The Chaos/Psychodrama Interface

For a more detailed explanation of the Hollander thesis and chaos theory, I encourage readers to consult the original works. I hope I have provided a basis for seeing the connection between the psychodrama and chaos theories.

Because spontaneity—the ability to function at least adequately, as situations demand—is the essential ingredient for any psychodramatic process, part of the similarity can be seen in comparing chaos theory to spontaneity theory. I (Remer, 1996) have already compared the two, but the overlap can be further accentuated by noting the similarity of Butz's (1997) depiction of the creative process from a chaos perspective (see Figure 2) to the canon of creativity. The parallels go beyond the creative process, although that process



is central. To see more of the interplay, we can examine the psychodrama curve and its components.

Warm-Up

During the warm-up, the cohesion of the systems involved, both individual and group, are addressed. The sociometry incorporates the strange attractor(s) and basin of attraction of group behavior/interaction.

Encountering. First, during encounter, the readiness of individuals and the group as a whole for engaging in a chaotic process is assessed and fostered.

Consistent with Hollander's (1969) description, Butz (1997) contends that cohesion is essential to productive change at the boundaries of chaotic systems.

Using starters. Beyond attempting to ensure the viability of the process, the warm-up brings together and focuses the components of the system (the group members), initiating the interplay of their conserves/strange attractors at multiple levels of interaction (e.g., verbal, physical). In particular, the tele between and among group members and the therapist/director is engaged. Through the use of specific starters, warm-up techniques, the reproduction and recollection of self-affine/repetitive patterns of interaction are engendered, promoting the selection of both a group theme and a sociometric star to represent it.

Attending to sociometry. The sociometric identification of a protagonist is like choosing a strange attractor and basin of attraction—a conserved behavior pattern—to examine, to appreciate, and to change. Coming full-circle to encounter again, the cohesion and resources of the group are marshaled for the enactment.

Enactment

At the enactment stage, the most complex, dynamical interaction occurs on multiple levels. Strange attractors of all participants come into play, providing the potential for chaos and change.

Setting the scene. The initial requirement of the enactment is the setting of the scene in which the first interactions will occur. Protagonists concretize for themselves, directors, and audiences the protagonists' conserves—their views of reality.

At that point, the necessity for approaching the goal from a chaos perspective becomes more obvious (see Figure 3). The conserved scene can be viewed as a schema (Piaget & Inhelder, 1976) or schema/strange attractor (Butz, 1997). It is not simply a visual representation (particularly to the protagonist) but a multileveled construction based on all the senses. As the protagonist is instructed to relate the components of the scene, recall is enhanced by referring to and engaging the protagonist in a nonlinear, interactive process. The interaction of present stimuli (such as props, auxiliaries) and their spatial relationships with other multisensory input (e.g., how the room smells, how the carpet feels, what sounds are present) produces a re- or disorientation—a type of bifurcation. "As the scene is relived, often sounds, smells, and bodily sensations are revitalized carrying with them the uncon-

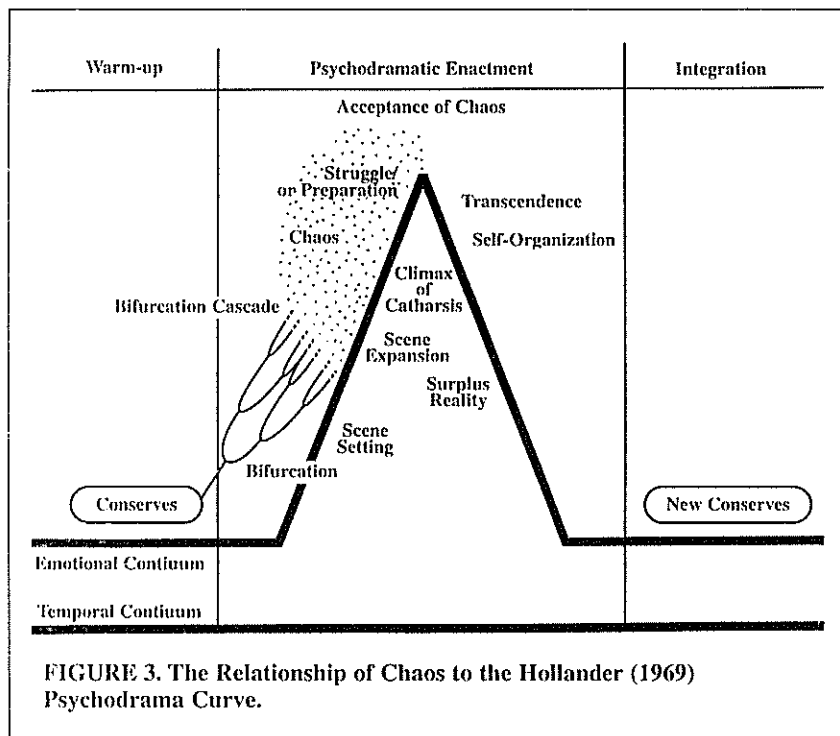


FIGURE 3. The Relationship of Chaos to the Hollander (1969) Psychodrama Curve.

scious associations which will frequently surface as part of the psychodrama” (Hollander, 1969, pp. 5–6).

Establishing time. Also, the use of present stimuli and patterns relies on the self-similar quality of the interaction that produces the effective orientation (or reorientation) to time. “Individuals are linked to both time and space . . . [and] there is simultaneously a vital link to the other variables. As time, place, and people are woven together, there is a greater potential for emotional involvement and clarification for both rational and emotional integration later in the psychodrama session” (Hollander, 1969, p. 6).

Selecting auxiliary egos. The selection of auxiliary egos depends on self-affinity as well, along with the fractal nature of recollection. After protagonists set the superstructure of their scenes, they are helped through interview and role reversal to recapture for themselves and to present to the audience the conserved significant others’ roles (more strange attractors) central to the enactment of the scene. The selection, even more than the scene setting, is accomplished through an interactive, nonlinear process. (In fact, reading

accounts of some of Moreno’s interviews of protagonists may leave the impression, from his disconnected interview style, that he is purposely being nonlinear, much like a hypnotic confusion induction.) Once that impact has been achieved, the protagonists are asked, “Who can be those significant others for you?” Often protagonists will fight the disorienting, nonlinear aspects by trying to resort to choosing auxiliaries on physical similarities. Selections are usually more effective, however, if the choices are made on the telic level instead, capitalizing on self-affinity on an intuitive, holistic level. Even with designated, trained auxiliaries, their effectiveness is based on promoting the self-affinities. Their training can be viewed as learning how to engage the dynamical process to do just that (i.e., capitalizing on gestures, specific words, or voice peculiarities of the significant others presented and portrayed by the protagonist).

Once the essentials are in place, the action is entered at the role-taking level—staying as close as possible to the protagonist’s conserve/within the basin of attraction presented. Regardless of whether the auxiliaries are representing members of the protagonist’s social atom, abstract concepts (like dissertations), or fantasy figures, enactment requires interaction. Because the auxiliaries and the director have conserves/strange attractors of their own triggered by engaging in their own roles (director, auxiliary ego, double, audience) in the enactment, a tension is induced between the protagonist’s “reality” and the “realities” of the others present. Even in the initial scene, while the basin of attraction—how the “biases and assumptions are rationally and emotionally maintained”—of the protagonist is being depicted and explored, bifurcation is being initiated. The “atmosphere of permissiveness which nurtures a feeling of trust and freedom” (Hollander, 1969, p. 7), created by initially staying primarily with the protagonist’s conserve(s), establishes the foundation necessary for the protagonist, the director, and the group to tolerate and to cope with the increase in chaos as the enactment moves from the periphery to the core.

Moving to catharsis. Chaos is usually already abundant in the core scene, as represented by the confusion/ambivalence and lack of closure/act-hunger of the protagonist. The self-organization necessary for the formation of a functional, stable strange attractor has not occurred, although the basin of attraction may contain the behavior pattern with a high degree of bifurcation (ambivalence). As the enactment progresses, the ever increasingly spontaneous interactions between the director and the cast and among all the individuals present (role-playing/expanding the patterns of behavior presented) increase the bifurcations, the chaos, even more. When the boundaries of the basin of attraction are breached, the chaos can provide the energy and necessity for the self-organization required for the establishment of a new, viable

strange attractor. An indication that this characterization is apt is that “the exactness of detail becomes less significant than the emotional qualities related to the experiences” (Hollander, 1969, p. 7). In other words, the interaction produces a nonlinear, complex reaction experienced on multiple levels, as the basins of attraction are challenged to contain changes in patterns.

“As the affective climax approaches, the director confronts, supports, and encourages the protagonist to release in action those emotions which have remained unexpressed or disintegrated” (Hollander, 1969, p. 7). The height of chaos is reached during the catharsis of abreaction—bifurcation cascade, a disorienting and disconcerting state—at which point the system must perform reorganize.

Moving to closure. The chaotic energy released during catharsis must be channeled and focused so that the systems (protagonist, audience, and group) can be restabilized and new strange attractors/conserves be established. The first part of this goal, the protagonist’s, is influenced and fostered through surplus reality. Experimenting is done with different new behavior patterns. New basins of attraction are defined (role creating) through role training (anchoring the new conserve/strange attractor) and spontaneity training (exploring the basin of attraction), preparing for the unpredictability of real-life interactions.

Every attempt is made to influence the installation of a functional basin/conservé. Only productive patterns are reinforced through positive endings; destructive patterns are reworked and suppressed. During the enactment closure, the reorganization of the audience and group strange attractors may be influenced vicariously and indirectly. Direct attention is paid to these goals in the last stage of the psychodrama session, the integration.

Integration

Although the integration—particularly the sharing (audience disclosure), if done correctly—may further self-organization of the protagonist, it is aimed more at the self-organization of the audience (individual member strange attractors) and the group self-organization/sociometry (group strange attractor).

Sharing. Through the sharing, four objectives can be realized. First, the support of the protagonist during the self-organization process can be accomplished by other group members’ (especially those who have been protagonists) normalizing and validating the reaction to experiencing chaos (disorientation and disquiet). Second, by the “disclosure in kind,” a new group basin of attraction, including the protagonist, is instituted. Third, the degree of

chaos in the individual audience members can be assessed by noting the act-hunger, disorientation, and emotional agitation present. Fourth, self-organization can be promoted by brief work by and/or support for participants other than the protagonist.

Dialogue. The dialogue promotes the sense of stability, for both the group as a whole and the individual group members, that the closure produces for the protagonist. First, a new basin of attraction is established for the group as a whole, as the sociometry of the group is addressed. Trust, confidence, and comfort with the group interaction reaffirm the group cohesion within the new basin. Second, a move to a more cognitive level reduces the interaction with other dimensions restraining chaos and promoting the opportunity for further self-organization, at least in the cognitive dimension (somewhat like inserting damping rods in a reactor to lessen the reaction).

Summarizing. In a somewhat more succinct, holistic, and less provocative way, summarizing finishes the process of the integration stage and the entire drama. It closes down the overt dynamical process, although self-organization certainly continues until adequate stability is reached.

The summary and the dialogue portions build from an affective focus to a cognitive one. As the members endeavor to integrate their feelings, experiences and thoughts into a congruous whole [i.e., establish a new basin of attraction], they simultaneously insure *themselves* [emphasis added] against the possibility that anyone will exit from the session in “psychodramatic shock” or in a state of incompleteness, pain, or panic [i.e., in a continuing chaotic state]. One way to close an emotionally energized group is to help members return to their “heads,” i.e. [sic], their intellectual processes. (Hollander, 1969, p. 11)

What Chaos Theory Offers Psychodrama

Foremost, chaos theory provides or reinforces an understanding of the underlying dynamics of the psychodramatic process. It also directly links that process to other human dynamical processes and to dynamical processes in general. The heuristic potential is extraordinary as constructs/concepts from chaos theory are applied to the psychodrama experience and analogies to psychodramatic construct/concepts are examined (see Figure 3). Beyond that promise is the possibility of empirically exploring and supporting the applicability and effectiveness of psychodramatic interventions as never before. Attendant on the growth in the number of chaos theory adherents, the research methodology, unfortunately still in its nascent stage, is being developed.

On a more specific, and perhaps concrete, level, chaos theory provides guidance, as well as recognition and support, for the way psychodramas are

conducted. Foremost is the recognition of the unpredictability and lack of total control attendant on the nonlinear process. For example,

If the protagonist manifests resistance while drawing near the emotional climax, the director has the option to become firm and supportively urge the completion of the abreaction and catharsis, to detour the route undertaken by the protagonist while opting for an alternative, or to deal with the protagonist's resistance. Whichever choice the director makes, the emerging emotions must be handled with care and sensitivity. (Hollander, 1969, p. 7)

Experience with certain techniques and interventions can provide therapists with a sense of the patterns of response that may be manifested. At best, they may influence the results produced by the interventions. The actual impact may be self-affined and resemble, more or less, what we have come to expect because the interactions are too complex to predict or to control. That fact is recognized and addressed by the focus on spontaneity of action by all participants, using or coping with what is produced in the here and now. Knowing and sensing what is happening with the identified patterns may increase the probability of staying within the basin of attraction or being able to cope more effectively and efficiently with moving beyond those boundaries. However, according to the butterfly effect, we have no guarantees. Chaos theory indicates that this multileveled, complex interaction (internal/external, protagonist/director/auxiliaries/audience, multi-sensory, cognitive/affective, cerebral/physiological/physical) will self-organize. As Moreno (and chaos theory) implore, "Trust in the process."

Chaos to some degree and at some level is attendant upon change. Disorientation, discomfort, anxiety, or fear is engendered and encountered. Those reactions promote, are signs of, and are chaos (a "strangely" self-reflexive process). Changing conserves/strange attractors/schemata requires disassembling, to some degree. Because psychodrama is so effective at inducing just such a result, we must not only recognize it will happen but also be prepared to address the profusion and confusion of feeling, action, and thought to which all involved will be exposed. The chaos must be expected, engendered, and normalized for all participants—chaos must become a symbol (Butz, 1997). Again, we must trust in the process.

Chaos is difficult to assess (Butz, 1997). It may be far more a subjective than an objective experience, at least in human dynamical systems. The cues available—anxiety, emotional agitation, dissociation—may help, but the telic bond among participants may offer the best sense of how chaotic the process is at any moment. Possibly, chaos is sensed and transmitted more as an analog/left brain function or even at physiological levels below the cortex (e.g., like fight-or-flight reactions through the limbic system). Much like human beings' ability to detect or to construe patterns and symbols, grasp the gestalt of a situation, chaos may be most effectively addressed by trusting the

process, at a more intuitive level. Being objective, as either a director, an audience member, or even a researcher, is a recognized impossibility. In fact, simply being present affects one's interactions and perceptions. Accepting the situation, not as limiting but rather as an alternative, possibly more efficient and effective mode, requires learning to trust many of the attendant dynamical processes beyond our usual, familiar, and comfortable practices.

These general implications pertain to all participants. Implications for dealing with the specific psychodramatic process roles (director, protagonist, audience, double, and auxiliaries) can also be considered.

Audience

Audience members would benefit from understanding how and why the psychodramatic process will affect them. When the chaotic reactions are normalized for them, they then can be better prepared to understand, accept, foster, and benefit from their experiences. They need not be so knocked-off-balance, a fear that seems to deter many people from being willing to participate fully or even at all.

Auxiliaries

By accepting their reactions as paralleling those of the protagonist and the director, auxiliaries can learn not only to expect a degree of tension and discomfort in moving from role taking to role playing but also to understand and even capitalize on their own confusion, frustration, and hesitance. Instead of being stymied, they might then be able use those reactions spontaneously to promote the warm-up of the others involved.

An understanding of the flow of chaos can also help auxiliaries in fostering the establishment of new strange attractors during the integration (role-creating) stage of the psychodramatic process. By knowing how to avoid more chaos, the auxiliaries can take appropriate actions to influence the self-organization that is progressing. For auxiliaries, learning what to expect (i.e., anything) and knowing more about how strange attractors/conserves interact can enhance their spontaneity. Auxiliaries can learn to trust their own processes and intuitions, the processes and intuitions of the director and protagonist, as well as the psychodrama process as a whole.

Protagonists

Some explanation of the chaotic tenor of the psychodramatic process can demystify it for protagonists. Their knowledge and acceptance of the disorganization and discomfort involved may allow protagonists to be better prepared

for those reactions. As a consequence, they can give themselves over to the process, not fighting the flow/chaos—a mistake—and benefiting from and even capitalizing on the possibilities for changing strange attractors.

Directors

Of all those present at a psychodrama, the director will benefit most from an understanding of the chaotic nature of the psychodramatic process experienced by all participants. The director as leader is the star/strange attractor at the center of the various interconnected patterns (e.g., sociometry, enactment flow) and has the responsibility of working with the chaos generated at all levels and in all participants. If anyone is in danger of being overwhelmed by not being adequately prepared, it is the director.

First and foremost, directors must understand and accept their limitations. As chaos increases, the need for control does also. Because interventions are unpredictable, directors must influence the interactions spontaneously, adapting in the moment. Conserved reactions may prove to be ineffective or even self-defeating. Most of all, the process must be trusted to promote self-organization. Excessive control may be inhibiting.

The best response a director may give is attention to the intuitive assessment of the level of chaos, attempting to make it overt and normalizing it for all participants. In observing the movement toward self-organization at all levels from a distance, the director may facilitate formation of functional new strange attractors. For example, by viewing the whole group as a larger basin of attraction, the director can bring the more or less energized participants into the action to modulate it to a degree, rather like inserting or removing the damping rods in a nuclear reactor. Participants with their own unstable basins of attraction can be regulated, increasing the chances that the interaction will be spontaneous rather than impulsive.

Even if directors cannot predict the impact of their interventions/structures, they may be able to rely on the dynamical processes at higher levels (e.g., the group) to help contain or promote the chaos at lower levels. By bringing the group and the individual strange attractors together, at opportune times, within the larger basin of attraction of the psychodramatic process, bifurcation leading to necessary chaos can be engendered to support change. Although the dynamical process may explode, the group interaction and the confines of the strange attractor of the psychodramatic process provide encompassing basins of attraction likely to contain the interaction patterns within acceptable boundaries.

Another important lesson that chaos teaches concerns the limits of communication. Directors direct. To do so, they communicate their ideas to auxiliaries and protagonists who enact them. Most often, those visions are com-

municated through words. However, communication is fractal in nature, so the message sent is never exactly the message received. To increase the probability that the actions taken are more like those envisioned, directors can be more specific in their instructions or enhance the communication by using more than one modality. The drawback to this method is that it can encourage directors to over control and to move too close to the action, diminishing their ability to view from multiple perspectives. Fortunately, communication is also self-affine, with the general meanings of the communication being shared. Thus, if directors set the general patterns in motion, allowing the auxiliaries and protagonists to interact, the dynamical process should take a course of its own. Directors will then be outside the action, better placed to perceive the patterns from a distance and to influence the process toward more functional self-organization, rather than being part of the chaos at the action level.

If directors understand the implications of chaos theory for psychodrama, they can better comprehend the importance of the various stages and components represented by the curve and the necessity of a complete process or the impact of a truncated one. Recognizing the levels at which the dynamical processes are occurring (intrapsychic, individual, group) and their parallels (self-affinities), the directors can promote or capitalize on them. For example, Corsini and Cardone (1966) recommend dismissing the protagonist after the enactment, before the sharing, dialogue, and summary. Although the intent of shielding the protagonist from the promotion of further chaos and allowing self-organization to proceed is admirable, the overall impact is likely to increase chaos and impede self-organization at all levels.

By recognizing the whole psychodramatic process as a large basin of attraction containing the patterns of psychodramatic behavior, the director may be better able to influence those patterns to stay within the defined boundaries. Although that goal may not be always attainable, when chaos increases to the point where the boundaries are exceeded, directors can better recognize the occurrence if they are familiar with chaos theory and cope with it more effectively if they are more comfortable with the experience.

What Psychodrama Offers Chaos Theory

An examination of the chaos theory/psychodrama theory interface provides a heuristic process for better understanding psychodrama, and the same holds true in the other direction. For instance, our analogy of constructs such as conserve and sociometry helps us understand strange attractors, basins of attraction, self-affinity, and so forth. Beyond the theoretical level, however, psychodrama has even more to offer.

Chaos theory can be viewed as an underlying, general structure for under-

standing dynamical systems. Although it certainly enhances the understanding and practice of many more specific theories, it has no praxis dimension. For human dynamical systems, psychodrama may be uniquely suited for implementing the tenets of chaos theory. The concept of spontaneity fits the necessity of dealing with human dynamical, complex, interactive, unpredictable systems perform. In fact, few psychological constructs from other theories are as process oriented and, by specific design, as compatible with the demands of dealing with dynamical human systems.

Unlike many of the other theories dealing with human change, psychodramatic theory is in and of itself nonlinear, holistic, nonreductionistic, and multileveled. What is experienced as chaos on one level may seem to be a pattern when viewed from a larger basin of attraction, rather like viewing an abstract, pointillist painting. Psychodrama depends on recognizing, moving between, and capitalizing on these shifts between perspectives. Part of the skill of directing depends on the ability to recognize, to move between, and to change the level of interaction/perception. Another part relies on the director's ability to engage multiple strange attractors and bring them into juxtaposition for optimal effect. Yet another is the ability of the director to establish a large enough basin of attraction to contain the chaos at other levels.

Psychodrama is a meld of the linear and the nonlinear, the right and the left brain. It respects both logic and intuition. Because of its ability to recognize, tolerate, and integrate the contradictory aspects of reality, psychodrama theory and practice can extend the reach of chaos theory to have a practical impact.

Psychodrama process can be used to influence the production of chaos. Hollander's Psychodrama Curve provides a general map to the basin of attraction (the more general pattern of interaction). By using the map and the techniques developed to negotiate it, therapists will find that possibilities exist not only for working with chaos therapeutically but also for studying chaotic systems/interactions (Remer & Betts, 1997).

Just as chaos theory is more accepting of and congruent with analog, right-brain, intuitive recognition of patterns, the reciprocal influence of chaos and psychodramatic theories can prove beneficial. If, as suggested, chaos is more easily detected from the subjective/intuitive/qualitative perspective, then those trained in and adept at telic interaction and sociometric research philosophy (Moreno, 1951) may provide a means for studying chaos. The tension between the subjective and objective points of reference so evident in the logical positivist view and many more linear change approaches can be addressed effectively, as Moreno long ago struggled to do. Coupled with approaches being developed and explored—consensual qualitative research (Hill, Thompson & Williams, 1997), synergistic analysis of structured essays (Tinsley, 1997), and retroflective auto-analysis (Remer, 1990) or those abandoned as too subjective (Wundt, 1912)—the rapprochement of objective and subjective

envisioned by Moreno (1951) may find its greatest impact in the study of chaos.

Conclusion

The match between psychodrama and chaos theories is notable. The commonalities of the perspectives are synergistic and beneficial to both. Unlike the tensions and incompatibility encountered when chaos theory contacts other therapeutic perspectives that are linear and reductionistic, even the philosophical underpinnings of psychodramatic theory coincide well with those of chaos theory. The acceptance of the complexity of human interactions coincides with the recognition of nature's own tendency toward order.

Both theories view reality as fluid, subjective, and ever-changing, a process to be influenced and dealt with rather than a product to be controlled. They can thus accommodate the seeming polarities and contradictions of life. Multiplicity (e.g., ambivalence) is accepted and even welcomed as a positive resource to be integrated and reconciled, rather than as something to be eliminated. Both attend to patterns at various levels—what they are, how they can be represented, what impact they have, and how they can be viewed and used more productively and functionally.

We cannot control the totality of life, which is too complex for us to control, and we can accept that truth as a challenge. Both theories suggest we must take life as it comes and deal with it as best we can. Spontaneity, the key concept in psychodrama theory, offers both a skill and a positive frame from which to approach this challenge. The single most important message derived from both theories that can provide direction and reassurance is that we have to "trust in the process." To do so, we must understand and accept the type of process life is—a chaotic, self-organizing one. The marriage of psychodrama and chaos theories provides a better basis to achieve that end than either can individually.

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Theoretical and Methodological Issues in Group Support Systems Research: Learning From Groups Gone Awry

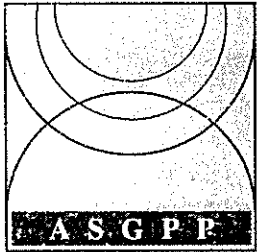
LEONARD M. JESSUP
JOEY F. GEORGE

ABSTRACT. The amount of research on group support systems (GSS) is growing quickly. One component of GSS, anonymous interaction, has received a great deal of attention recently. The quantitative and qualitative research thus far on anonymous GSS interaction suggests that the effects of GSS anonymity on group processes and outcomes are positive and/or neutral. In this article, the authors explore the potential for negative and/or dysfunctional consequences of GSS anonymity and discuss the relevant implications and research questions to be asked and answered.

THE DEVELOPMENT OF COMPUTER-BASED INFORMATION systems to support collaborative work—referred to here as group support systems (GSS)—is growing quickly. GSS combine networked personal computers, group decision support software, and structured group problem-solving methodologies to support group problem solving and decision making, typically in a setting much like a corporate board room. There are now more than 40 such facilities on university campuses, more than 100 such facilities in business settings, and there are a myriad of GSS software packages available commercially (see Jessup & Valacich, 1993, for discussion).

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The pioneering membership organization in group psychotherapy, the American Society of Group Psychotherapy and Psychodrama, founded by J. L. Moreno, MD, in April 1942, has been the source and inspiration of the later developments in this field. It sponsored and made possible the organization of the International Association on Group Psychotherapy. It also made possible a number of international congresses of group psychotherapy. Membership includes subscription to *The International Journal of Action Methods: Psychodrama, Skill Training, and Role Playing*, founded in 1947 by J. L. Moreno as the first journal devoted to group psychotherapy in all its forms.

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