Promoting Sustainable Peace

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Abstract
Decades of research has taught us a great deal about conflict - escalation, stalemate and de-escalation. However, in contrast to the abundant research on conflict, relatively little research has focused directly on sustainable peace. There is often a basic assumption in conflict studies that a thorough understanding of the problem of destructive conflict will, by default, provide insight into the conditions and processes which foster and sustain peace. This assumption, however, has been found by scholars and practitioners to be erroneous. Although the lessening of openly destructive or violent conflict is likely a necessary condition for stable peace, there is no reason to believe it is a sufficient condition. In fact, psychological research on positive and negative evaluative processes and attributions have shown that positive processes (like peace) and negative processes (like destructive conflict) function independently and often involve very different precipitating conditions, temporal scales, weights, and dynamics. This means that there may be big differences between ending conflicts, bringing about peace, and sustaining peace.

The dearth of research on sustainable peace has left us with a very limited understanding or misunderstanding of this state, and a reliance on approaches for promoting peace that may be insufficient, misguided, or that may even bring about unintended negative consequences.

Approach
The approach outlined in this paper to understanding and promoting sustainable peace is informed by our research on dynamical-systems theory and peace. This type of research has found that qualitative differences in the dominant patterns of social behavior (such as those found in peaceful societies versus hostile or warring societies) can be accounted for by a few basic factors. Accordingly, our research attempts to identify, from scholarship and practice, the fundamental factors which determine sustained peaceful dynamics in communities or, put another way, societies which evidence immunity to prolonged destructive or violent conflict.

Our basic model centers on the idea of attractors. These are relatively stable patterns that are evident in all types of systems (from biological systems to social communities to solar systems) which resist change and which “attract” or pull the state of the system toward its pattern. Think of a whirlpool in a river which draws-in to its pattern the surrounding water and matter that flows within its field of attraction. We have found that the patterns of social interactions between people and between groups in communities operate according to similar basic principles. This has direct implications for understanding and promoting sustainable peace.

Groups and communities typically have only a few qualitatively different attractors operating in their social system (see Figure 1). This means that the potential for peaceful interactions between groups in a community and the potential for other types of relatively stable interaction patterns (disengaged, estranged but tolerant, destructive, etc.) often co-exist in communities all the time as latent possibilities – even when only one type of interaction pattern (such as open hostilities) is evident. These different potential patterns (attractors) are created slowly, incrementally over time – typically through thousands of small interactions between people – and come to exist as potential modes of interaction even when
they remain virtually unseen. At any time, the interactions of a community can move from one manifest attractor (such as peace) to another latent attractor (such as war), even when sparked by rather minor incidents which can shift the pattern from one to another in dramatic fashion. This is evident both in sudden outbreaks of group violence in situations of relative peace (such as is occurring in Northern Ireland at the time of this writing) as well as in sudden outbreaks of peace in situations of protracted conflict (such as occurred in the 1990s in Mozambique after 16 years of civil war).

Figure 1: An attractor landscape for community relations with one manifest attractor (the current state of relations - location of the ball), two latent attractors (currently unoccupied potential states), and one repellor (the opposite of attractors such as social taboos – in red).

This basic scenario which distinguishes the current state of communal life from other potential patterns of interaction (each with differing degrees of width, strength and “pull”) sets the stage for our research and for the following set of recommendations for promoting strong attractors for sustainable peace.

“Stable Peace: A situation in which the probability of war is so small that it does not really enter into the calculations of any of the people involved”
Recommendations

The following set of recommendations for fostering sustainable peace have been generated by our multidisciplinary team of scientists (psychologists, anthropologists, complexity scientists, and physicists) and derive from a combination of practical experience, theory development, and empirical research including case-based and laboratory research on sustainable peace.

1. **Increase movement for peace.** The findings from our research and from the scholarship of many others support the basic idea that peace is associated with movement. When people and groups get trapped in narrow attractors for social relations, whether in patterns of destructive conflict, oppressor-oppressed dynamics, or even in patterns of isolation and disengagement from others, their well-being tends to deteriorate and their level of resentment tends to build. These traps may be constituted by physical structures such as slums, ghettos, or other segregated spaces, or by social-psychological constraints such as norms, attitudes and ideologies. When trapped in such a well, people can be creative at becoming ever more destructive, oppressed, independent, etc., which acts to deepen the attractor and makes it less likely they will be able to escape its pull. Of course any pattern of behavior may be functional in certain situations; a destructive orientation fits very well in times of armed conflict. But these patterns can become dominant and pervasive and as the current situation changes, or when people move to different situations, it is critical for them to be able to adapt – to take up different patterns of behaviors that are appropriate to the varied situations they face. From this perspective, **sustainable peace requires the establishment of conditions which allow for adaptation; for movement and reorientation of the parties in a manner fitting with changes in their environment.**

2. **Increase complexity for peace.** Research has also shown that more constructive social relations evidence higher levels of cognitive, emotional, behavioral, and structural complexity. This is particularly necessary when groups face problems or conflicts with other groups. As conflicts intensify, there is a strong tendency for the parties’ thoughts, feelings, and behaviors to become more simple and black and white (which is evidence of strong attractor dynamics). If the conflict spreads to the community level and persists, then we see the same polarization occur in social networks, groups, and institutions. However, communities and groups who maintain more complex cross-cutting (intergroup) structures and social networks, who hold more complex (multiple group) social identities, and who display more complex cognitive, emotional, and behavioral (adaptive) patterns, have been found to be more tolerant of outgroups, evidence less violence when conflicts spark, and engage in a more constructive manner when conflicts become difficult. Thus, **sustainable peace requires structures and processes that foster increased contact and complexity.**

3. **Peace is associated with sufficient movement toward justice.** Decades of research on the psychology of justice has found that movement is also central to justice and peace. First, a sense of relative deprivation has been found to be a fundamental source of ethnopoltical conflict and instability in otherwise peaceful communities. This is the injustice felt when people experience a gap in what they feel their group deserves and what it can achieve – in comparison to similar groups.
This experience is typically triggered by change – shifts in the status quo which affect what groups expect, what they can get, and who they compare themselves to. However it is the need for procedural justice, or the sense that there exist fair processes for the allocation of goods and for recourse against grievances, that has been shown to be critical to addressing injustice, even more so than actually receiving fair outcomes. Furthermore, the rate at which justice is achieved is also critical. Peace scholars have found that minority groups who feel that the channels for fair recourse are blocked or too unresponsive are more likely to revolt. However, they have also found that when particular minority groups ascend to justice and equal treatment too quickly, it can raise the aspirations, envy, and resistance of other groups (including those in power), and thus destabilize communities. Thus, procedures of justice that provide a sufficiently steady response to the grievances of all stakeholders area necessary condition for sustainable peace.

4. **War and peace can co-exist.** As the attractor landscape in Figure 1 indicates, groups and communities typically hold the potential for dramatically different types of interaction patterns simultaneously. It may be that one attractor or another captures the state of the system for extended periods of time (as is seen during protracted periods of conflict). However, this does not mean that peacebuilding initiatives (peace education, dialogue groups, intergroup cultural exchanges, common community projects, etc.) during this period are for naught. Here, the idea of latent attractors provides an important new perspective for understanding peace. In this view, the malignant thoughts, feelings, and actions characterizing a group’s dynamics during conflict represent only the most salient and visible attractor for the group. Particularly if there is a long history of interaction with the out-group, there may be other potential patterns of mental, affective, and behavioral engagement vis-à-vis members of the out-group, including those for positive relations. With this in mind, identifying and reinforcing latent (positive) attractors, not simply disassembling the manifest (negative) attractors, should be the aim of conflict prevention in service of sustainable peace. In other words, in addition to attempts at achieving negative peace (an end to destructive conflict and violence) and the goal of positive peace (establishing fair systems of opportunity and justice) we must also strive to enhance promotive peace; the establishment of strong attractors for positive, constructive social relations.

5. **“Reverse engineer” negative, destructive attractors.** Establishing latent attractors for peaceful relations is only part of the story. When conflicts do arise, the most obvious need is to quell any violence and contain actively destructive processes. This is often done by introducing police support, peacekeeping troops or other forms of regional or international military interventions. However, even when systems de-escalate and appear to return to a state of peace, it is critical that we recognize that the potential for destructive interactions (destructive attractors) still exists. It is important, then, that we work actively to deconstruct and dismantle the negative attractors. This can be done through a variety of initiatives, including: introducing negative feedback loops (early-warning systems, cross-cutting structures, international monitoring, etc.); institutionalizing more nuanced, alternative conflict narratives (through media, textbooks, official accounts, etc.); and limiting the pervasive spread of conflict by allowing movement of the parties.

6. **Foster repellors for violence.** Anthropological research has shown that a key characteristic of peaceful societies both in history and today is the presence of non-violent values, norms, ideologies,
and practices. These scholars suggest that such communal taboos against violence have existed for the bulk of human history, and were a central component of our ancestors, the pre-historic nomadic hunter-gatherer bands. Today, non-violent norms are practiced in many communities around the globe, but are often overwhelmed by more violent ideologies, messages and social modeling. There are a wide-variety of parenting and educational methods for fostering more non-violent, prosocial attitudes and skills in children, such as violence-prevention, tolerance, cooperative learning, conflict resolution, and peace education curriculum, just to name a few. However, sustainable peace will require a much more concerted effort to both teach non-violent values, norms and practices to young people and to better limit exposure of youth to gratuitous forms of violence and to destructive social modeling by adults and public leaders.

7. **Realize that peace is never achieved.** Peace is a dynamic process, not an outcome. It requires a set of fair processes and procedures that allow all stakeholders to negotiate for their needs and rights, in order to create unity out of diversity. Indeed, peace initiatives uninformed by an ongoing process of reading feedback are destined to do more harm than good. Research has found that the most effective decision-makers are those who are able to continually adapt; by remaining open to feedback they can reconsider their decisions and alter their course if necessary. These leaders make more, not fewer, decisions as their plans unfold, and ultimately are able to enhance the well-being of the communities with which they work. Thus, effectiveness comes from flexibility not rigidity. In this way, *we can work to increase the probabilities that peace will emerge and be sustained.*

**Discussion of the Problem**

Today, very few scholars study peace. Although the few that do tell us that today there are approximately 80 societies world-wide who could be categorized as having low-levels of internal aggression, and 70 societies who are peaceful in their relations with other groups and communities in their regions (Fry, 2006). Unfortunately, our understanding of such groups, and of the conditions that foster prosocial relations, is extremely limited. There is often an unarticulated assumption in research on war and conflict that a thorough understanding of the problem of destructive conflict will provide insight into conditions and processes which foster and sustain peace. This assumption has been found by researchers to be unfounded and incorrect (see Gottman, Murray, Swanson, Tyson, Swanson, 2002; Losada, 1999; Losada & Heaphy, 2004). It is clearly time to champion the study of peace in its own right.

**Dynamical-systems Research on Sustainable Peace.**

In 2006, our international team of scholar-practitioners was funded by the James S. McDonnell Foundation to develop a theory of enduring conflicts from the perspective of complex systems. Subsequently, we became interested in the direct study of peace. The current project applies the principles and methods of dynamical systems theory to the study of the fundamental parameters underlying sustainable peace. The project is being conducted by a multidisciplinary research team consisting of 1) a specialist in the study of peace and conflicy (Peter T. Coleman); 2) two social psychologists with expertise in the application of dynamical systems to cognitive, interpersonal, group,
and societal phenomena (Andrzej Nowak and Robin Vallacher); 3) a physicist with expertise in formal descriptions and the modeling of system dynamics (Larry Liebovitch); and 4) a social anthropologist (and practitioner) who specializes in peace processes and NGOs (Andrea Bartoli).

**Attractors and the Collapse of Complexity**

Our basic theory proposes that it is the *collapse* of complexity that promotes intractability in a conflictual society. When distinct issues become interlinked and mutually dependent, the likelihood of finding a solution that satisfies all the issues is correspondingly diminished. In effect, the activation of a single issue activates all the issues. If a border incident occurs between neighboring nations with a history of conflict, for example, there is likely to be a reactivation of all the provocations, perceived injustices, and conflicts of interest in the past. The parties to the conflict thus are likely to respond disproportionately to the magnitude of the instigating issue. Even if the instigating issue is somehow resolved, the activation of other issues will serve to maintain and even deepen the conflict.

The loss of complexity in the perception of issues is apparent at the level of individual functioning. Theory and research have identified factors such as stress, anxiety, and ego involvement that can impair cognitive processes. Under heightened threat to one’s safety, for example, people’s cognitive processes tend to promote overly simplistic, rigid, black-and-white perceptions, thoughts, and judgments (cf. Osgood, 1983). In a study of 50 Polish politicians, for example, Golec & Federico (2004) found that a high level of political thinking—which correlates with a high level of cognitive complexity, integrative complexity, tolerance for ambiguity, and moral development—is associated with a tendency for cooperation and compromise in political conflict. A low level of political thinking, in contrast, is associated with a simple, dualistic view of the conflict and with a competitive and destructive orientation (Conway, Suedfeld, & Tetlock, 2001). An increase in emotional intensity tends to reduce the use of cognitive resources and hence promote a simplified view of the situation that results in a more competitive approach to the conflict. People who score high in cognitive complexity, however, are less vulnerable to the influence of emotions on their orientation toward conflict situations than are those who score low on political thinking.

There is a clear link between the loss of issue complexity and the development of fixed-point attractors. Interpersonal and inter-group relations are typically complex and multi-dimensional, with the various mechanisms operating at different points in time, in different contexts, with respect to different issues, and often in a compensatory manner. The alignment of separate issues into a single dimension, however, establishes positive feedback loops, such that the issues have a mutually reinforcing rather than a compensatory relationship. All events that are open to interpretation are ultimately construed in the same fashion and promote a consistent pattern of behavior *vis a vis* other people and groups. The common state toward which diverse thoughts and behaviors converge represents a fixed-point attractor for the system. In effect, the attractor “attracts” a wide variety of mental and behavioral states. Even an unambiguous event that runs counter to the attractor can over time be assimilated to the attractor. A peaceful overture by the outgroup, for instance, could be seen as insincere or as a trick if there is a high level of mistrust regarding the outgroup.

This perspective provides a new way to conceptualize and investigate intractable conflict. Conflicts are usually described in terms of their intensity (e.g., amount of violence), but this feature does not capture the issue of
intractability. Even conflicts with a low level of intensity can become protracted and resistant to resolution. We propose instead that intractable conflicts evidence strong attractors for negative states and lack attractors for positive states. Knowledge of the attractor landscape of a system—the ensemble of sustainable states for both positive and negative interactions—is thus critical for understanding the progression, transformation, and de-escalation of intractable conflicts. Accordingly, attempts at conflict resolution are likely to fail if they do not work toward the achievement of sustainable positive states. They may result in a temporary ceasefire, but not in long-term co-existence. If no sustainable states exist, the first step at intervention should be directed to changing the ensemble of sustainable states. Only after such change has occurred can the system be effectively moved to a benign or positive state.

A system may be characterized by multiple attractors, but when the system is at one of them, the others may not be visible to observers, perhaps not even to the participants. These latent attractors may be highly important in the long run, however, because they determine which states are possible for the system when conditions change. By specifying possibilities for a system that have yet to be observed or experienced, the concept of latent attractor goes beyond the traditional notion of equilibrium (e.g., Abraham & Shaw, 1992). Critical changes in a system might not be reflected in the observable state of the system, but rather in the creation or destruction of a latent attractor representing a potential state that is currently invisible to all concerned.

The potential for latent attractors has implications for intractable conflict (Coleman et al., 2006, 2007; Nowak et al., 2007). Such factors as objectification, dehumanization, and stereotyping of the outgroup can promote intractable intergroup conflict (Coleman, 2003; Kriesberg, 2005), for example, but their impact may not be immediately apparent. Instead, they may create a latent attractor to which the system can abruptly switch in response to a provocation that seems relatively minor, even trivial. By the same token, efforts at conflict resolution that seem fruitless in the short run may create a latent positive attractor for inter-group relations, thereby establishing a potential relationship to which the groups can suddenly switch if other conditions permit. A latent positive attractor can promote a rapid de-escalation of conflict, even between groups with a long history of seemingly intractable conflict. This possibility is consistent with recent work on the dynamics of social judgment (cf. Latané & Nowak, 1994). In contexts of high personal importance, thoughts and feelings tend to sort themselves categorically, with each category corresponding to a different value (very positive and very negative). If the person’s judgment changes, it does so in an abrupt, nonlinear, qualitative manner rather than in a slow, linear, and incremental fashion.

**Implications of Attractor Dynamics for Promoting Sustainable Peace**

From the perspective of dynamical systems, there are two general strategies for transforming the malignant relationship between parties to a conflict. First, one can attempt to deconstruct the attractor maintaining negative thoughts, feelings, and actions. This does not mean, however, that one should attack the validity or value of parties’ mental and behavioral tendencies directly. To the contrary, research on the dynamics of social influence indicate unequivocally that this frontal approach is destined to backfire, producing strong reactance and a deepening of the negative attractor (Vallacher, Nowak, & Miller, 2003). Effective deconstruction of the attractor can be achieved, however, by focusing attention on specific (lower-level) elements comprising the attractor (Vallacher & Wegner, in press). By isolating specific thoughts and feelings, the system’s complexity is restored. And because of the press for system integration, the parties to the conflict are susceptible to new ideas and plans that restore coherence to their respective mental, affective, and behavioral states. This scenario
of deconstruction and emergence has proven successful in a variety of influence domains, and may provide an important new strategy in the promotion of sustainable peace.

The second strategy follows from the distinction between manifest and latent attractors. As noted earlier, conflict and peace are not endpoints of a single dimension but rather often co-exist as separate dimensions. In dynamical terms, the co-existence of malignant and (potential) peaceful possible relations is tantamount to the co-existence of two attractors constraining the dynamics of the parties to a conflict. Although effort should be devoted to the deconstruction of the negative attractor (in the manner outlined above), attention should also be devoted to strengthening the positive attractor for inter-group relations. There may be little immediate effect of fostering opportunities for positive relations between the groups, but such efforts plant the seed for a possible transformation should conditions change in a way that destabilize existing mental, affective, and behavioral patterns. If such a seed is not planted, it cannot take root even if the negative attractor is somehow discredited or otherwise destabilized. A dynamical system does not change unless it has a new space to occupy. A latent attractor essentially represents a new space for inter-group relations. The issue, in short, is not negativity and positivity per se, but rather the emergence and maintenance of coherence.

These two strategies clearly can (and should) work in tandem. Thus, simultaneous efforts should be devoted to the reverse engineering (deconstruction) of the negative attractor and the creation of a latent attractor for positive relations that can become manifest under conditions of ripeness. Our empirical and computational efforts to date suggest that such a two-pronged strategy may provide the key to transforming conflicts that heretofore seemed intractable.

Call to Action and Conclusion
The increasing complexity and fragmentation of conflict and the erosion of boundaries between different forms of violence associated with conflicts around the world necessitates a new approach to sustainable peace-building. This approach includes the following components:

- Movement beyond the focus on conflict, violence and war (problems) to the study of sustainable peace (solutions).
- Movement away from simple, linear models of cause-and-effect toward more complex, holistic models of sustainable peace situated within constellations of ecological, biological, psychological, social, economic, and other structural forces.
- An enhanced capacity to work collaboratively across a variety of disciplines to better understand and foster sustainable peace through multiple perspectives and complementary approaches.
- A shift in emphasis away from achieving particular short-term outcomes (peace treaties, agreements, etc.) toward establishing and maintaining the conditions for sustainable peace processes in communities over time.
- An enhanced capacity to communicate and build partnerships from science to policy/practice and from policy/practice to science.
The establishment of local, regional, and global networks of support and information on best practices for increasing the probabilities of sustainable peace.

What is required at this stage is an investment in a concerted effort to bring together scholars, practitioners, and policy-makers from a variety of disciplines to work to understand sustainable peace beyond the level of case-based descriptions, to get at the essence of their underlying dynamics. Collaborative, multidisciplinary work of this nature requires a common language or integrative platform to facilitate communication and coordination across the legendary disciplinary and theory-practice divides. Dynamical-systems theory, a scientific paradigm employed from cellular research to astrophysics, provides such a platform.

About the Authors
This paper was written by Dr. Peter T. Coleman, PhD, Director of the International Center for Cooperation and Conflict Resolution and Associate Professor of Psychology and Education at Teachers College, Columbia University. Dr. Coleman was the first recipient of the Early Career Award from the American Psychological Association, Division 48: Society for the Study of Peace, Conflict, and Violence, co-edits The Handbook of Conflict Resolution: Theory and Practice (2000; 2006), and has authored over fifty journal articles and chapters; Dr. Robin R. Vallacher, PhD, Professor of Psychology, Florida Atlantic University and Research Affiliate at the Center for Complex Systems, Warsaw University. Dr. Vallacher has published 5 books and uses experimentation and computer simulations (cellular automata, attractor neural networks, coupled dynamical systems) to investigate the dynamism and complexity associated with such phenomena as self-regulation, social judgment, close relations, inter-group conflict, and the emergence of personality from social interaction; Dr. Andrzej Nowak, PhD is Professor of Psychology at the Warsaw School for Social Psychology, where he is Director of the Institute of Social Psychology of Informatics and Communications. He is also Professor of Psychology at University of Warsaw, where he directs the Center for Complex Systems at Institute for Social Studies, and Associate Professor of Psychology, Florida Atlantic University. Dr. Nowak has published five books, and his primary focus is on the dynamical approach to social psychology; Dr. Andrea Bartoli, PhD is currently Director of the Institute for Conflict Analysis and Resolution at George Mason and was the founding director of the Center for International Conflict Resolution at Columbia University. He is the coeditor of Somalia, Rawanda, and Beyond: The Role of International Media in Wars and International Crisis (Italian Academy for Advanced Studies 1995). Dr. Larry Liebovitch, PhD is a Professor at Florida Atlantic University in the Center for Complex Systems and Brain Sciences, the Center for Molecular Biology and Biotechnology and the Departments of Psychology and Biomedical Science. Over the last 25 years he has used complex systems, including fractals, chaos, neural networks, and other nonlinear methods to study molecular, cellular, physiological and psychological systems which have provided insights into the structure and motion of ion channel proteins in the cell membrane, the timing of heart attacks, the spread of electronic and biological infections, the spatial pattern of artifacts found in archeological sites, the network of gene regulation mediated by protein transcription factors, and mathematical models of the conflict between people.

About the ICCCR
The International Center for Cooperation and Conflict Resolution (ICCCR) at Teachers College, Columbia University is an innovative center committed to developing knowledge and practice to promote constructive conflict resolution, effective cooperation, and social justice. We partner with individuals, groups, organizations, and communities to learn to resolve conflicts constructively so they may develop just and peaceful relationships. We work with sensitivity to cultural differences and emphasize the links between theory, research, and practice. More information at:

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