

Working in complex communities: what peacebuilding can learn from complex systems science

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Abstract

This paper adds to the critical literature on peacebuilding and development by applying a complex systems science perspective to contemporary peacebuilding, development and conflict resolution practice. It describes the communities that peacebuilders intervene in as complex social systems and focuses on the interdependence of actors and the systemic patterns that their interactions create. From this background the paper argues that peacebuilding and development are non-linear processes that cannot be planned with certainty and that successful peacebuilding ought to be an evolutionary process which focuses on building and transforming relationships to rebuild multidimensionality in protracted conflict situations. One way to do this is through intergroup dialogue processes which apply the abstract principles of complex systems science in small-group interaction and can assist in transforming the conflict landscape.

Introduction

Over the past 20 years the number of 'peacebuilding' interventions, often led by the United Nations (UN), has increased significantly (Ramsbotham, Woodhouse & Miall 2005, p. 222). These peacebuilding missions often aim to establish the rule of law, support democratic elections and help to design and implement economic and political reforms. Peacebuilding refers to an attempt, after a peace agreement or ceasefire has been negotiated or imposed, to address the sources of current hostility and build local capacities for conflict resolution (Doyle & Sambanis 2000). With the increase in peacebuilding activities, more and more studies and reflections on the effectiveness and

success or failure of peacebuilding operations have emerged. When assessed with regards to the goal of preventing future large-scale violence recent peacebuilding operations have not fared particularly well (Doyle & Sambanis 2000; Sending 2009).

The reasons why peacebuilding operations fail are manifold and a great number of academic and practitioner literature has tried to identify them. Central factors that have been identified for the lack of sustainability in peacebuilding operations are the lack of local ownership and the disregard for local practice (Paris 1997; Richmond, O 2008; Richmond, OP 2005; Suhrke 2007). Sending argues that this is due to the privilege of universal knowledge over local knowledge and the assumption that international legitimacy outweighs local legitimacy (Sending 2009, p. 4).

In this paper I add to the discussion about the challenges of peacebuilding operations a perspective which describes the local, national and regional communities that peacebuilders intervene in as 'complex social systems'. Complex systems theory has only recently made inroads into the fields of peace studies and conflict resolution (Brigg 2008; Coleman 2004, 2006; Coleman et al. 2007; Ricigliano 2003), and its application to the field is still in its infancy. John Paul Lederach identified the complexity of peacebuilding initiatives as "multiple actors pursuing a multiplicity of actions and initiatives at numerous levels of social relationships in an interdependent setting at the same time. Complexity emerges from multiplicity, interdependency and simultaneity" (Lederach 2005, p. 33).

By viewing communities as complex social systems I intend to show that many of the problems that international peacebuilding operations grapple with are caused by a lack of understanding of the systemic relationships within the societies in the host countries and the intervening countries. Complex systems science allows for the development of a theory of change as the basis for future peacebuilding operations which emphasises dialogical engagement with host communities and provides further proof that peacebuilders need to value local knowledge and local processes and need to engage with them in an egalitarian way if peacebuilding will have a chance of generating sustainable outcomes of reduced violence.

This paper relates to my work in conflict resolution and peacebuilding over the past years and my growing unease about how peacebuilding projects are planned and implemented. The decision to start or fund a project is often taken by a small group of experts in the donor countries. In particular I worry about the increasing donor demand to predict the outcomes of the project and to provide detailed project plans and logical frameworks as part of tender processes before the first contact is initiated with the people who are at the receiving end of the intervention.

Thinking about complex systems

Complex systems are phenomena which arise both in the natural, as well as the social world. Examples from nature include ant colonies, the human brain,

bird flocks, and the global climate system. Complex social systems can be found in markets, families and villages. What these systems have in common is that they cannot be understood and manipulated by reducing them to their individual components. An example for this is the ecosystem in a common garden. If we eliminate an insect the vacated niche will often be filled by another species and the ecosystem will continue to function although we removed an agent from the system. Compare this to a merely complicated system, such as a car or an airplane. In complicated systems the various elements that make up the system maintain a large degree of independence from each other. Removing one element leads to either system failure (such as when the car's radiator is removed and the engine overheats), or functioning with reduced effectiveness (such as when the windscreen wiper does not work anymore). At no stage is another part going to take over the function of the missing part to keep the system working close to its previous levels (Miller & Page 2007, p. 9).

Complex systems science challenges the notion that by understanding the behaviour of each component part of a system we will then understand the system as a whole. "One *and* one may well make two, but to really understand two we must know both about the nature of the 'one' and the meaning of 'and.'" (Miller & Page 2007, p. 3). Systems approaches discourage the overemphasis of either the individual or the environment and allow for the analysis of social actions within and across systems with particular emphasis on the interconnections (Healy 2005, p. 146; Ison 2008).

Communities as complex social systems

Although peacebuilders constantly work with or within communities, there exist few definitions of the term community in current peacebuilding literature. A common framework for thinking about the target groups of peacebuilders is Lederach's integrated framework for peacebuilding which differentiates between top leadership, middle-range leadership and grassroots leadership (Lederach 1997, p. 39). While Lederach acknowledges vertical and horizontal relationships between people in all three groups and argues that post-conflict societies are made up of nested systems and sub-systems, he does not describe how patterns of violence or peace are created from the complex interactions of people. Complex systems science offers an explanation for this phenomenon in the form of "social emergence". Novel and coherent structures, patterns and properties arise out of the process of self-organisation in complex systems (Goldstein 1999, p. 49). The interactions between people in the system can create peaceful patterns of interaction or violent patterns of interaction.

Alison Gilchrist, a British community development scholar and practitioner, emphasises the complexity of community environments characterised by interpersonal connections, fluid networks and small-scale, self-help groups and organisations. Community becomes an experience or capacity that emerges as a result of the interactions within a complex web of overlapping networks (Gilchrist 2004, p. 90). According to Gilchrist communities exist as social systems 'at the edge of chaos' in which people's sense of community,

their social identity, emerges from the unpredictable dynamics of mutual influence and interaction.

American sociologist Keith Sawyer has further defined the characteristics of such complex social systems. As such, communities are made up of many components that interact in densely connected networks, global system functions cannot be localised to any one subset of individuals or groups, but rather are distributed throughout the entire system, the overall system cannot be decomposed into sub-systems and these into smaller sub-subsystems in any meaningful fashion, and the components (i.e. individuals) interact using a complex and sophisticated language (Sawyer 2005, p. 5).

Fritjof Capra argues that complex social systems are never fully separate from other complex social systems, often they are nested within each other. Capra refers to the network of communication which recursively produces and reproduces itself in the social system as 'autopoietic'. Multiple feedback loops of communications produce a shared system of beliefs, explanations and values among a group of people which gives them identities and creates flexible boundaries delineated by expectation and self-identification (Capra 2002, p. 83).

What does this mean for peacebuilding?

Viewing the communities that peacebuilders enter and which they aim to change towards violence reduction and peace as complex social systems at the edge of chaos has significant implications for the objectives and processes of peacebuilding.

Interactions and effects are non-linear

One of the observations about complex systems is that system effects are non-linear and unpredictable, because they emerge from the large numbers of interactions in the network. Therefore, according to Robert Jervis, results in political systems cannot be predicted from separate actions (Jervis 1997). Contemporary peacebuilding practice, on the other hand, commonly uses a framework of conflict and needs assessment, intervention planning, intervention implementation and monitoring, and finally evaluation (Reychler & Paffenholz 2001, pp. 9-10). In addition to this, broad program objectives are often decided by officers manning the country desks of donor agencies, who may have little experience with, or direct connection to the communities in the host countries. The result is the ongoing disconnect between international objectives and local social reality that is so often criticised by scholars and practitioners worldwide.

Samir Rihani suggests that control of development and peacebuilding in complex systems is limited to the observation of outputs and the encouragement for the elements to interact in a way that moves the system towards reduced violence and improved living conditions. Management of such systems through intervention is a reiterative process that relies on slow and uncertain evolution. Command-and-control methods, detailed forecasts and plans are effective only for linear systems and fail to achieve desired outcomes in complex environments that involve vast numbers of interactions

where the results cannot be traced to specific causes (Rihani 2002, p. 9). In practice this means that even sophisticated conflict impact and needs assessments cannot guarantee that particular programs and projects will improve the situation in the host country. Peacebuilders are well-advised not to rely too much on logical frameworks and project plans and to be able to change or aboard projects. It also follows that short-term projects may be of little use and that instead funding arrangements should be made for long-term assistance that is constantly adapted and changed according to local needs. Just as the eradication of a specific type of insect in the garden does not save the plants from being eaten, because another insect can take over the function, eradicating a certain root cause for conflict and violence does not necessarily change the community to a more peaceful state.

Hierarchical structures are ill-suited to perform complex tasks

According to Yaneer Bar-Yam a complex environment is an environment in which actors have to make the right choice among a large number of possible wrong choices. This makes decision-making in a complex environment very difficult. One way to perform better in these environments is to aggregate the knowledge and skills of many people in organisations. Organisations can often make better choices than individuals and can implement those choices on a far larger scale than individuals. However the complexity of decision-making in an organisation directly depends on the organisational structure. An example for this concept is the manufacturing factory as it was envisioned by Henry Ford. Ford started by simplifying what each worker had to do. Each person performed a simple task over and over again, with different people performing different tasks. These tasks were coordinated to produce a single product, the Ford Model-T automobile. While the product is very complicated, it is not complex. Because the scale of action is large, the factory is able to produce en masse. The hierarchy that controls this process can depend on one individual at the top of the company communicating with and giving instructions to a small number of upper level managers, which in turn control and communicate with a larger number of lower level managers, all the way down to the largest number of factory workers on the work floor. Decisions in this system are ultimately made at the top of this hierarchy and communicated down. This means that the complexity of decision-making in the organisation is ultimately limited to the complexity of the individual at the top (Bar-Yam 2004, p. 66). In reality organisations are rarely controlled by one single individual. A board of directors, for example, is one way to increase the potential complexity of decision-making. Using hybrid structures of hierarchies and networks is another one.

However traditional hierarchies are often unable to make the right decisions in complex situations since the decision-making power is effectively delegated to an individual or a small group. To a certain extent this is the case with most international peacebuilding institutions, from the UN Peacebuilding Commission to AusAid. While there may be a large number of people involved in a peacebuilding intervention on the ground, the decision about which project or program gets funded and which does not is often made by a select few people in the higher echelons of a donor organisation. The more expensive the project the higher is the level of decision-makers (and therefore

their number is smaller and they are likely to be further removed from the local project or program conditions). The question arises whether these people are really the best decision-makers and whether even a group of experienced and intelligent country desk officers is able to make an ultimately complex decision. An organisational form that is better suited to make decisions in the complex environment of peacebuilding would be a decentralised network structure. In decentralised networks communication and decision-making are managed by a large number of individuals who are connected through personal relationships. Because the number of individuals is larger they can deal with more complex decisions. Organisations that rely on networks and are built using decentralised structures are often better able to respond to the complexities on the ground. Problems do not need to be communicated all the way to the top because decisions can be made at the level where the problem arises by people who are close to and familiar with the situation. What organisations with strong hierarchical structures could do to support this is to provide more responsibility and access to resources to the people who are actually working on the project or program. One way to implement this is through what Ricigliano calls the building of networks of effective action for peacebuilding (Ricigliano 2003).

Complex social systems cannot be built according to blue-prints

A lot of development assistance and peacebuilding interventions succumb to what is called 'the planning trap'. An example of this is the World Bank's Comprehensive Development Framework (CFD), but it can also be applied to the use of logical frameworks in peacebuilding. Since the host countries have often weak infrastructures, social support, economic activity and governance institutions (at least from the perspective of the Western 'developed' nations which often fail to recognise resilient customary social structures which take up these functions), the economic matrix of the CFD or logframe amounts to planning the structure of a functioning society. However it is not possible to plan a functioning society since we do not know exactly how such a society works. There is an abundance of social problems in most Western countries, such as crime, corruption and lack of social support for vulnerable groups to name only a few. Interveners cannot even plan functioning societies in their own countries, so how can they assume that this is possible in post-conflict societies (Bar-Yam 2004, p. 206)? When we look at the development of societies and institutions in Western 'developed' nations, then we look at the epitome of hundreds of years of evolution in governance, economics and social relationships. Complex social systems cannot be built or planned, they develop through social evolution.

Because social systems cannot be planned and predicted and because each environment and case is unique, it is a fallacy to expect that the replication of Western institutions in post-conflict societies will assist in moving these societies to less violence-prone ways of interaction. But that is exactly what a large number of peacebuilding and development initiatives do.

Violent systems can be stable and resilient systems

The current discussion often refers to 'fragile states' as governance systems with weak institutions in which the monopoly of violence is not held by formal

state institutions, in which the rule of law is under threat, and which are unable to provide basic social services and protection to their citizens (Clements 2009, p. 1). In a more general sense, a lack of social order prevails (again as viewed from a Western perspective). These so-called fragile states are then perceived as providing breeding grounds for transnational terrorism, weapons proliferation and organised crime and hence state fragility also affects neighbouring states and the international community at large (Boege, Brown & Clements 2009, p. 13). This view of fragile states as dysfunctional social systems has caused the international community to focus their attention for peacebuilding and development projects on improving effectiveness, capability and legitimacy of (formal) state institutions, in particular the law and order institutions. Policy-making in peacebuilding and development often focuses on developing functioning states, capable of protecting citizens, and delivering a range of social and educational services, which are meant to create legitimacy and citizen obedience to power and authority (Clements 2009, p. 1).

This concept of state fragility does not sit well with recent research into the causes and dynamics of protracted social conflict situations. Coleman identified more than 50 variables in the literature which are associated with protracted social conflict (Coleman 2003). Weak state institutions and delivery of social services are only some of the factors identified. A paradox that can be identified in many protracted conflict situations is an essential stability despite tremendous volatility and change. An example for this is the conflict in the Middle East, which is by all accounts protracted and intransigent, and which has shown a remarkable resilience despite the myriad efforts by the international community to progress a roadmap for peace (Coleman et al. 2007, p. 1455). Conflict progresses towards intractability as the elements relevant to the conflict self-organise into a structure and the elements become connected by positive feedback loops. Positive feedback loops in complex systems bind together elements that are necessary for action initiation and maintenance. They are normally balanced by negative feedback loops which dampen system dynamics and constrain actions by other elements that are linked. A balance is necessary for effective self-regulation and social regulation. If the positive feedback loops promote conflict and violence and there are not enough negative feedback loops that can counter this system effect, then violent conflict can become a stable self-reinforcing state of the system (Coleman et al. 2007, pp. 1462-5). The state of destructive conflict then represents what Coleman et al. call a 'strong attractor'. Removing one or more causal elements of the conflict as part of peacebuilding initiatives will likely not result in a conflict de-escalation because the remaining elements continue to fuel the conflict. Using complex systems science to inform peacebuilding practice can provide advice for such situations.

Evolutionary peacebuilding to address systemic issues

Although one might be tempted to argue that because of its essentially non-linear nature peacebuilding is condemned to failure when viewed from a complex systems perspective this does not have to be the case. Complex systems science itself provides a number of perspectives on how complex social systems can be changed towards reduced violence and improved

social cohesion. Many of these perspectives explain successful interventions, such as third party mediation, problem-solving workshops and dialogue processes. Changing system dynamics involves studying the system including the nature of the linkages and feedback loops. Peacebuilding interventions can then aim to reduce positive conflict-enhancing feedback loops and build or improve negative conflict-decreasing feedback loops. This can restore the multidimensionality and balance of the system (Coleman et al. 2007, p. 1468). Interventions can either be aimed at moving the system to a different (more peaceful) attractor or at changing the attractor landscape itself.

Another perspective on how systemic changes can be initiated can be drawn by way of an analogy to what Bar-Yam calls 'enlightened evolutionary engineering' in complex socio-technological systems (Bar-Yam 2004, pp. 229-31). Evolutionary engineering involves an agreement to cooperate and to compete at different levels of organisation. At local level different teams of individuals initiate a number of projects to improve the system. Based on the existing social relationships and local capacities for conflict resolution, governance and provision of social services, these teams aim to improve the local situation in their part of the system. To a certain extent these projects will possibly even compete with each other. The local projects are connected through a network of individuals who can share experiences and compare notes. That way successful local processes can be implemented in other communities and adapted to the local situation in these parts. Interventions can be used to build small communities of peace with increased social cohesion and multidimensional resilience against the conflict-promoting structures around the community. By strengthening communication and networks with other communities the peace-promoting factors may spread and form other 'peaceful communities' in other parts of the larger society. Thereby the system as a whole can evolve to a less violent state. An example for this practice are zones of peace in Colombia and other Central and South American countries (Lederach 2005, p. 16). Instead of scaling up projects and developing national or regional programs systemic peacebuilders support initiatives at the local level and, if successful, encourage the sharing of experiences with other local groups to build networks across the system.

The focus on relationships between the elements or agents of a system is perhaps the greatest contribution that complex systems science can make to peacebuilding and conflict resolution. It is not so much the issues, like root causes and social and economic deprivation, that need to be the focus of interventions, but rather the relationships between people in the groups and communities of the host countries as well as the relationships between the interveners and the host societies. Morgan Brigg takes this a step further and argues for the recognition of 'networked relationality' in conflict resolution. This concept combines the insights of emergence phenomena in networks with the idea of becoming-other as referred to in the dialogue literature (Bohm 2004; Buber 1985) to constructively engage across difference. The idea of networks emphasises relationships and their mutual interdependencies instead of individuals and institutions alone (Brigg 2008, p. 151). The nodes in a network may be pre-existing entities but they can only function because of their relationships with other nodes. This interdependence creates a state of infinite probability in which the node is open to change in every direction

depending on the other nodes it is connected to. The idea of becoming-other plays on a common technique in conflict resolution which emphasises that individuals in conflict should attempt to see the conflict through each other's eyes. It allows a dialogue across difference which can assist conflict parties to understand different worldviews or interpretations of social reality.

A practical application of this networked relationality is the practice of intergroup dialogue in which participants seek to create a similar state of infinite probability in which they open their minds to new ideas and create new discourses by relating across difference with other participants.

Strengthening relationships through intergroup dialogue

According to Jenlink and Banathy, dialogue is a “culturally and historically specific way of social discourse accomplished through the use of language and verbal transactions.” It includes notions of community, mutuality and authenticity and aims to establish an egalitarian relationship (Banathy & Jenlink 2005, p. 4).

The concept of dialogue has its roots in Western culture and can be traced back to Socratic dialogues by Plato (Dessel & Rogge 2008, p. 200) and the root of the word dialogue itself, which stems from the Greek word ‘dialogos’. Dialogue can be transformative, generative or strategic. It is collective communication that allows for the sharing of thought, can transform existing beliefs and create new innovations and cultural artefacts (Banathy & Jenlink 2005, p. 5). Dialogue also allows participants to examine and share preconceptions, prejudices and the characteristic patterns that lie behind their thoughts, opinions, beliefs and feelings and roles (Bohm, Factor & Garrett 1991). The basic idea is to suspend opinions as well as judgment of what others share and to try to gain understanding of their starting points.

Although many ideas found in the dialogue literature are based on Western ideas dialogue processes have been found to give participants from different cultural backgrounds an opportunity to understand the influence of existing cultures and the differences that distinguish them without letting a particular culture or cultures dominate the discourse. Because dialogue lets participants experience each other in context by prompting them to share life stories and experiences to extend the dialogue context beyond the confines of the immediate geography of meeting it provides insight into values, logic and worldviews of the people involved. This can bridge intercultural conflicts and help conflicting parties improve their knowledge and understanding to transform their relationships (LeBaron 2003, p. 256). This experience in context also allows communities of people to improve the multidimensionality of their social system and increase its resilience against violence.

Although not a problem-solving or conflict resolution technique per se, dialogue processes are used in a wide variety of conflict and post-conflict settings to assist in conflict transformation and reconciliation, ranging from community-level processes to track 1 diplomacy (Ropers 2004, p. 2). Bettye Pruitt and Philip Thomas provide an extensive overview of public dialogue projects since 1994 (Pruitt & Thomas 2007, pp. 188-213). Dialogue is a repeated process of reciprocal translation which eventually forges a common

meaning and establishes the basis for a new community, which is not equal to the world of either participant in the dialogue but a transformation of the fundamental relationship of the participants (Ramsbotham, Woodhouse & Miall 2005, p. 294). As such dialogue does not aim to replicate or roll out one worldview but engages participants to develop a new and shared social reality in a process of social evolution.

Harold Saunders describes a five-stage model of sustained dialogue which brings together individuals from the different sides of a conflict who are willing to engage to make a change, assists them in mapping and naming problems and relationships, encourages them to probe the problems and to choose a new direction, supports them in building a vision of changed relationships and helps them to act together to implement the vision (Saunders 2001, pp. 89-92). Inherent in dialogue is the potential for change and for discovering new directions. Individuals are encouraged to incorporate others' views into their pictures of a situation and their own perspectives are enlarged (Saunders 2001, p. 84). Often new ideas - which are more than just the sum of the ideas of each participant - emerge and provide a new way forward. New and creative ideas are generated that were impossible to think of before and may assist the system to move towards a more peaceful attractor.

Conclusion

This paper has attempted to interpret common criticisms of peacebuilding and development interventions from a complex systems perspective. I have argued that contemporary peacebuilding practice is still governed by a positivist, reductionist and linear understanding of social change. This leads to the assumption that program and project outcomes can be predicted and planned with certainty. In complex social systems such planning is impossible. Therefore donor agencies and peacebuilding organisations are well-advised to reconsider their often immense logical framework approaches which demand detailed project pre-planning which often bears little resemblance to the situation on the ground. While it is certainly important that donor agencies work with accountable and reliable groups and individuals on the ground and that programs and projects are not planned and implemented arbitrarily, they should invest in more relationship building with local partners instead of highly detailed project proposals and evaluation methodologies.

Moreover peacebuilders need to admit that it is impossible to plan a "peaceful society" and that such a system is the ongoing product of social evolution. This evolution starts at the local level, and rarely do imposed social structures gain any traction on the ground (unless they are completely transformed into a new institution in a process of social evolution). Assisting local groups to form 'networks of effective action' (Ricigliano 2003) and to replicate successful small-scale projects to spread peaceful ideas is more effective than supporting hierarchical structures and institutions that are limited in their complexity and cannot deal with conflict and violence appropriately. In particular the practice of re-building local government structures by replicating Western institutions in Non-western social systems needs to be reconsidered.

Quite often social systems that exhibit violence against individuals and where the monopoly on violence is not held by the state are considered as 'fragile'

and dysfunctional. Research has shown that this is a misnomer. Violent systems can be extremely stable and functional (to maintain violent states) over time because of strong attractors which keep the system in the violent state (despite many peacebuilding and development interventions). Positive violence-supporting feedback loops within the system need to be researched and weakened to strengthen negative feedback loops which may help the system to change to a different and now peace-promoting attractor. The examination of attractors (and the effects of violent social structures which constrain the emergence of new peaceful ideas) may also help to assess project viability better and encourages the building of relationships across dividing lines to decrease the positive feedback loops.

One way to build those relationships and to make use of complex systems thinking is through increased use of grassroots dialogue projects. Dialogue aims to change relationships and to harness the dynamics of collective interaction. By helping participants to learn about each other they establish new patterns of relationships and they can harness the increased complexity of groups versus individuals to create new and more peaceful social structure.

While complex systems science provides intriguing perspectives for peace and conflict studies researchers and practitioners, I acknowledge that it is just one paradigm among many. And like every paradigm it highlights certain aspects of conflict situations by neglecting others. Although systems approaches claim to integrate other paradigms into one coherent meta-system they have often been criticised of losing focus for the details in favour of a birds-eye view and for providing little guidance to apply theory on the ground (Healy 2005, pp. 147-8). The problem of overemphasising the whole or the parts is one that Bar-Yam describes as focusing. Like a photo camera systems practitioners can zoom in on the detail (the particular small-scale community they are working with) and zoom out to see a larger picture (by talking to other local or regional groups about unforeseen impacts of a project). Mary Anderson's work on aid effectiveness provides a number of examples on how a larger perspective can help to reduce negative project impacts (Anderson 1999).

Complex systems science is unlikely to provide all the answers to the problems of contemporary peacebuilding and development and surely there will be other paradigms in the future that will assist peacebuilders. However complex systems science provides a number of important insights into the practice which confirm some of the critiques that are being voiced against current peacebuilding initiatives and will hopefully spark more discussion and research.

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