A complexity perspective on work with offenders and victims of crime*

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Victor R. D. MacGill, Victor MacGill

Abstract
Internationally, cognitive behavioral theories form the foundation of work with offenders, because they have proved to be the most effective in bringing about changes and reducing levels of reoffending. As with any theory, the original theory has been consistently modified and adapted in attempts to make it even more effective at bringing about behavioral changes in offenders. This paper first gives an overview of cognitive behavioral theory, seeing how its linear approach has cut it off from wider perspectives that might make it more effective. It also develops an understanding of criminal behavior from a complexity viewpoint. From there it examines from a complexity perspective the work of the Community Probation Service in New Zealand, which uses a cognitive behavioral approach, and the recently completed pilot of the restorative justice system, bringing offender and victim together in a mediated forum. An effective complex adaptive system has strong autonomy and efficient connectivity. If any member of a community violates the autonomy or connectivity of another, a crime is committed. Work with offenders and victims focuses on restoring the autonomy and connectivity of those involved and the whole community, better enabling the dynamics of self-organization to reemerge. Offenders are seen as developing schemas supported by cognitive distortions that allow them to bypass the barriers that keep most of us from offending. If an existing maladaptive schema can be carefully destabilized, it can enable the formation of a new, more effective schema that does not include offending behaviors.

Introduction
Cognitive behavioral theories form the foundation of work with offenders internationally, because they have proved to be the most effective at bringing about changes in offenders' behavior and reducing levels of reoffending (McGuire, 2000). Cognitive behavioral theory is based on the idea that a person's thoughts and emotions determine their behavior. Therefore, if we change the thoughts and emotions, the behavior is changed. A simple model often used to explain the principles of cognitive behavioral theory to offenders is the ETC model. This simply describes behavior as the process from an event, which leads to thoughts (and feelings) about the event, which then determines the consequences. Understanding this process can help offenders realize they can have control over impulsive offending behaviors.

Cognitive behavioral theory and complexity theory
Complexity theory has some areas in common with cognitive behavioral theory, therefore it will be useful to examine how they might complement each other to provide even more effective methods of working with offenders. For example, the ETC model process can be explained as moving from one attractor basin to another on the phase space. Having this alternative understanding might generate new techniques for using the ETC model in practice. The differences between the approaches may point to new ways of using cognitive behavior therapy that increase its effectiveness. Both recognize behavior as a recursive process.

Cognitive behavioral theory tends to sharply define the difference between thoughts and emotions. The boundary between thoughts and emotions is, however, fuzzy at best, and it may even be that thoughts and emotions are merely different aspects of the same neurological processes, as proposed in Minsky's theory of emotions (Minsky, 1998).

Cognitive behavioral theory proposes that when an event happens, we first have thoughts about the event followed by emotions, from which the response is determined. An evolutionary psychological approach would suggest that since emotions appeared earlier in our evolutionary history and are less complex neurologically than cognitive processes, it is more likely that an emotional response would appear before a cognitive response (Sagan, 1978). This is supported by the APET therapy model (Griffin & Tyrrell, 2004). This shows that emotions are elicited in the limbic system and are pre-linguistic. Messages are then sent to the cerebral cortex to be processed where thinking occurs. They are then returned to the limbic system, generating a feedback loop of further thoughts and emotions. This casts doubt on the view of cognitive behavioral therapy that behavior is best changed by addressing distorted thinking. There has already been an emotional response before thinking has begun. A wider perspective is needed that reflects the true complexity of neurological processes occurring in the brain.

A complexity perspective suggests that the brain is an autopoietic system (Maturana & Varela, 1980) with many feedback loops
and connections between the various parts. It would suggest that decision making is an emergent self-organizing process and that thoughts and feelings are mutually arising, co-emergent phenomena.

Some actions, such as murder and rape, would be universally seen as offending against individuals or the community, while others such as “soft” drug use, abortion, or euthanasia are less clear and will be determined as a violation by some societies and not by others. For the purposes of this paper, an offense is defined as an action prohibited by the laws of New Zealand.

**Autonomy and connectivity in complex adaptive systems**

A complex adaptive system is a nonlinear system formed by many autonomous agents intensely interacting among themselves, thereby allowing the system to maintain both strong autonomy and connectivity. Emergent properties can then appear that could not have been previously predicted. A complex adaptive system can adapt to changes in its environment to make itself more fit to operate within the environment. In other words, a complex adaptive system can learn from past experiences to make better decisions for the future (Levin, 1998; Fryer, 2005).

Human beings, like all complex adaptive systems (Capra, 1997), require effective autonomy and connectivity to operate optimally (Stacey, 1996). A strong autonomous human agent is able to make informed decisions freely within its environment without being unduly influenced by other agents. At the same time, that agent must be open to receiving information from other agents and working constructively in a wider network for the greater good of the whole. Autonomy and connectivity thus stand as complementary aspects. They are dynamically interlinked and influence each other. Enhancing connectivity can affect the autonomy of the individual agents and vice versa.

If a system is too strongly focused on the autonomy of the individual agents, then the agents lose their ability to cooperate and the whole system becomes less effective as the individual agents work against each other destructively. Alternatively, if the system focuses too strongly on its connectivity, the agents lose their individuality and diversity and the system becomes inflexible. Maintaining the correct dynamic balance between autonomy and connectivity is crucial for a complex adaptive system to maintain its internal properties.

Because of the intense interconnections between the agents in a complex adaptive system, any agent or agents that violate other agents and adversely affect their ability to maintain their autonomy or connectivity also reduce the ability of the entire system to operate effectively as a complex adaptive system. The system becomes less able to sustain itself within its boundaries and adapt to external environmental pressures.

A crime is committed whenever a person’s autonomy is violated or their connectivity with others is significantly disrupted. Work with offenders and victims focuses on repairing the autonomy and connectivity of the offender and the victim so that both return to being a fully integral part of their community.

This paper assumes that the best results in working with offenders and victims are achieved when the dynamics of self-organization are supported. We must note, however, that since we can never be certain of the outcome of any particular behavior in complex systems, at times behaviors that seem to support self-organization will work against it, and seemingly destructive behaviors will unexpectedly result in positive outcomes.

Keeping this in mind, however, some broad principles can be developed, which can provide a theoretical basis for work with offenders and victims.

Like all dissipative systems, a complex adaptive system requires a flow of energy through it to survive and maintain itself (Prigogine & Stengers, 1984). The system itself defines its own boundary, which is a dynamic boundary changing according to the state of the external and internal environment. The boundary must be semi-permeable, allowing an interchange, usually of chemicals and organisms, with the outside environment or there can be no connectivity. For example, a body cell must be able to allow certain substances into the cell, while excluding others.

Other complex adaptive systems have immaterial boundaries, such as our sense of identity. Rather than chemicals and organisms, there is a flow of experiences, each of which must be incorporated into the person’s sense of identity or rejected as harmful. Just as the cell will sometimes fail to detect a harmful organism, a person can unwisely incorporate harmful experiences into their sense of identity. Such invasions tend to give a short-term advantage to the invader, while being harmful for the person invaded and the community they live in. A crime is such an invasion.

Privacy is a key strategy used to protect our autonomy from violation by others. If every part of ourselves is open to influence by other agents, we are no longer autonomous. To protect autonomy, the more critical parts of the system are walled off, so that only highly trusted outsiders can gain access. We maintain areas of privacy at all levels from our individual self to wider social levels. We have private body parts, diaries, private rooms in our houses or workplaces, and private military installations in our nation. To significantly invade any of these places is a crime.
Schemas

Human beings have a need for a sense of meaning, security, and control or we feel anxiety. Cognitive behavioral theory proposes that one way in which we meet these needs and avoid anxiety is by forming schemas (Stacey, 1996; King, 1999). A schema is an internal representation of the world, an organization of concepts and actions that can be revised by new information about the world (Answers.com, 2006). The schema acts as an attractor of beliefs and values consistent with an individual’s mode of functioning.

A person’s schema affects all aspects of their being, so if someone has a schema that justifies violence, then violence will be expressed in many different ways within them. Their aggression will show in their physical body, in their thoughts and emotions, in their relationships, and in their interactions with the outside world. If the underlying belief system is changed, the new behaviors tend to filter back through the whole being.

A well-balanced person with a strong sense of autonomy and vibrant connectivity will have strong, effective schemas. They will have beliefs that support themselves and their communities. A person whose sense of autonomy and connectivity is not well balanced will form distorted and maladaptive schemas (Young, 2003) that may lead to behaviors that violate the autonomy and/or connectivity of others.

Whenever a person’s schema is challenged, anxiety arises. Ideally we will have the ability to adapt our schema to integrate the new event, but often we do not. Stacey (1996) talks of anxiety containment, whereby a person uses a variety of strategies to alleviate feelings of anxiety while retaining the maladaptive schema. We often choose destructive and addictive strategies such as drugs, alcohol, gambling, or adrenaline rushes to contain our anxiety rather than dealing with the cause of the anxiety. The addictions often lead to offending, which then becomes incorporated into the person’s schema. Offending becomes justified, because that is easier than dealing with the addiction.

There are other theories about how we formulate our experiences into a coherent whole that might be used to understand criminal behavior in ways that open up new perspectives.

Maturana and Varela’s work on autopoiesis (Maturana & Varela, 1980) and later enactive cognitive theory (McGee, 2006) examine cognitive processes from a complexity perspective. Rather than a linear approach aimed at a specific predefined outcome, autopoiesis recognizes structural coupling between the different elements of cognition, so the system is cognizing the environment and the environment is responding to the cognition. An autopoietic system is one that is organized as a network in such a way that the components of the network maintain themselves and the relationships between them (University College London, 2003). McGee (2006) identifies autonomy, coupling, feedback, temporality (or maintaining its history) and downward causality (where the macro level influences the micro level) as characteristic of enactive perspectives of cognition. He also states that there is no objective history before people interact, that the whole process is interconnected through mutual arising.

The role of the observer is also seen as important in cognition, which is not recognized in cognitive behavioral theory. Enactive cognitive theory states that the observer cannot have access to the cognitive system of another person, as they live in their own world of experience. At the same time, objective reality arises from the coordinated actions of human agents.

Minsky’s society of mind (Minsky, 1988), heavily influenced by his background in artificial intelligence, proposes that our mind is formed by a large number of automatically operating components somewhat like a suitcase full of many individual items, which together enable complex cognitive tasks to be undertaken. The similarity with complexity is obvious and provides a possible extension to cognitive behavioral theory that could provide more flexibility in describing the realities of cognitive processes.

Minsky also proposed that we use frames to conceptualize our world. A frame might be “living room.” The frame would not only hold information about the living room, but also information about how the frame would be used. This frame could have subframes that give meaning to part of the frame and the frame could be a subframe for a higher-level frame. Each time we go into a living room, the living room frame is activated in our mind, simplifying the act of perception. Minsky states that frames hold default assumptions formed from information gained by past experiences. The frames together therefore interact in a coherent way to enable perception that is heavily weighted by past experience.

Sterelny (2003) questions whether a theory of mind, an internal mapping system, is necessary to explain human behavior. He concludes that other apes such as chimpanzees probably do not need a mental representational system to exhibit the behavior seen, but proving this possibility for humans is more difficult. Sterelny describes some chimpanzee behavior based on imitation that is cognitively complex but would not require a theory of mind.

Work with mirror cells discovered by Rizzolatti (Buccino, et al., 2004) may reveal information that sheds light on the nature of how we form a coherent understanding of our world that can influence techniques of working with offenders.

The offender

By offending, an offender has chosen to violate the autonomy or connectivity of other agents within their community, reducing
An offender's schema, however, allows those feelings to be overridden. They may be swayed by short-term gains, such as money, a rush of emotion, or gaining the esteem of peers. Cognitive distortions are used to contain the anxiety generated by the conflict between the person's internal code of conduct and their actions. The following is a list of cognitive distortions that are commonly used (King, 1999):

- **Deny**: “It didn’t happen at all.” “I wasn’t even there at the time.”
- **Blame**: “He made me do it.” “If you knew your job, I wouldn’t be here now.”
- **Minimize**: “It didn’t hit him, it was just a push.” “It’s not as if he was unconscious.”
- **Justify**: “Well, he hit me first.” “They can afford it, besides they’ll get insurance.”

These alter the agent’s perception of the events surrounding the offense, making their actions more acceptable to themselves and others. This reduces the anxiety and maintains their existing maladaptive schema.

Through habitual use, the offending schema has been canalized on the individual's phase space. To encourage the emergence of a new non-offending schema, the attachment to the existing schema must be destabilized, tipping (Gladwell, 2002) the offender toward the edge of chaos (Waldrop, 1992) so that a bifurcation can allow the emergence of new non-offending schema.

Motivational interviewing is a technique that challenges the pro-criminal schema by highlighting the cognitive distortions and incongruities of the discourse and feeding them back to the offender. This destabilizes the schema and pushes the person from their local optimum on the phase space toward the edge of chaos. The offender is supported to build a new optimum on the phase space, set on a foundation within the bounds of an attractor acceptable to the community. The worker helps the offender to build a “bridge” on the phase space between the two optima to facilitate movement from one to the other (Lucas & Milov, 1997).

**The victim**

The victim is the agent who has lost some autonomy and/or connectivity because of a violation. The violation often triggers emotions such as anxiety, shame, anger, and sadness. Ideally, these feelings trigger the agent into acting to stop the violation from occurring.

The violation of the offender separates both the offender and the victim from their community. They have been cut off and need to be reintegrated back into the community. Once reintegrated, the agents can once again play their full role in building the emergence of self-organization within the community. Under the present system, the offender is often punished rather than being offered a pathway back into the community. The situation is usually worse for the victim, who is generally also the innocent party. The courts have taken over the role of ensuring that justice is dispensed, leaving the victim with no means of expressing their pain and anger. They, too, are kept from being able to reintegrate with their community again.

**The offender/victim duality**

The traditional justice system, and indeed also restorative justice as discussed below, need to be able to isolate the offender, defined as the one who is responsible for the violation, from the victim, who is seen as innocent. In reality, the distinction between offender and victim is often fuzzy. Often an offense has occurred because of a conflict between people that escalated. The offender is the one who won the fight, and the victim is the one who lost.

Defining the offender and victim like this reduces the level of complexity to allow more linear processes to determine how justice will be maintained. We must ask in what ways acknowledging the fuzziness of the victim and offender might change how we would work with offenders. The main difficulty in acknowledging the fuzziness is the problem of
The cycle of change (Adapted from the work of Prochaska and Di Clemente with permission)


Naturally, a restorative justice conference will not always be appropriate. Often either the offender or victim does not wish to participate. On the other hand, a conference can be effective and enabled significant healing between offender and victim, even in crimes such as rape (Szmania, 2004).

From an autopoietic perspective, a probation officer would be attempting to use languaging and emotioning within the consensual domain of the offender in an attempt to bring about changes (Maturana & Varela, 1980).


: These people have made up their mind to make changes, but still have significant negative habit patterns to overcome. They can easily regress to earlier stages in the cycle; Restorative justice takes the additional step of working with the victims of crime and provides new ways of resolving the conflicts in society in a way that is more likely to enable the emergence to new levels of functioning throughout the community.

: This person has little or no awareness of their problem and no investment in making any changes. Other people are generally blamed for any problems; From interventions are primarily aimed at high-risk offenders, assessing the level of risk is crucial; Since interventions are primarily aimed at high-risk offenders, assessing the level of risk is crucial; Minsky, M. (1988). The Society of Mind, ISBN 9780671657130.

: Those who cannot maintain the necessary changes lapse back into criminal behavior and begin the whole cycle again.

: There is a need to assess the likelihood that the person will be able to respond to an intervention. Barriers to responsivity include intellectual incapacity, alcohol or drug use, and poor motivation. If the disruption to the existing schema is too severe, the person will withdraw from the process or move into deep resistance phase. If they are not strong enough to canalize the new behavior, they will relapse into offending behavior.

The stages of the cycle are (see also Figure 1):

1. Pre-contemplation
2. Contemplation
3. Action
4. Maintenance

Determination: There must be an assessment of the criminogenic (crime-producing) needs of the offender. Examples are violence propensity, alcohol and drugs, and offense-related sexual arousal;

Ormerod

Mindfulness-based cognitive behavior therapy (Cayoun, 2004) focuses on allowing a person to gain control over the cognitive and behavioral components of their problem. By introducing these components into the therapy, it becomes possible for the person to feel more comfortable and confident in their ability to handle the challenges of their experience.