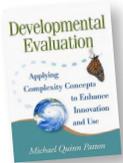


emerging

The newsletter of Plexus Institute • Fall/Winter 2011



Book Review:

Developmental Evaluation

A new book, reviewed by Plexus' own Liz Rykert, takes a fresh look at measurement and evaluation through a complexity lens.



Defining the Terms:

Complex Responsive Processes

Challenging, complexity-related terms explained in simple English.



Feature:

A Place for Healing

Learn how Louisville Hospital partnered with The Healing Place to bring new resources and opportunities to patients struggling with addiction.



Thought Leaders:

A "Both/And" Kind of Dialogue

Plexus President Lisa Kimball interviews neuroscientist Scott Kelso on "the squiqle sense," and the science behind the mental capacity for holding two seemingly opposing ideas.



Also:

- Meet Andrew Pyle, recipient of the first Plexus Fellowship
- Meet our new members
- PlexusCalls
- BONUS book review: "1493"

emerging: **book review**

“Developmental Evaluation”

Applying complexity Concepts to Enhance Innovation and Use

Reviewed by Liz Rykert

Change-makers are often frustrated by the mantra ‘if you can’t measure it then it doesn’t exist’. If anyone can prove this statement to be untrue it is Michael Quinn Patton.

Patton, an award winning evaluator and significant contributor to the field, has produced a book for people who know traditional logic models often fail to capture what’s really going on. The book is his effort to bring depth and structure to the practice of developmental evaluation, an approach he first suggested in 1994. It is a bonus outcome from his collaboration with Frances Westley and Brenda Zimmerman on the book *Getting to Maybe*. At the time the publisher told them to take out all the references to developmental evaluation on the premise that no one would be interested in buying a book on evaluation.

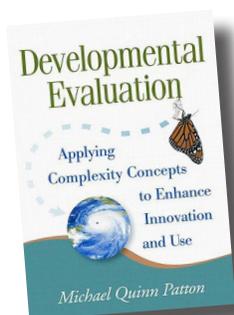
Developmental evaluation is defined as evaluation that fits best in complex environments where outcomes are unknowable and potential influences unpredictable. Patton makes careful distinctions between summative, formative and developmental evaluations. He is careful to value each of these approaches for the application where they fit best. It is not either/or. In fact one might combine methods in certain circumstances. Patton settles into developmental evaluation as the approach most needed to help innovators truly move to a new place.

But there’s more. Patton has also delivered a primer in complexity concepts. He uses humor, examples and stories to ground the theory. In fact some of his descriptions are the clearest and most accessible I have seen. He is clearly enjoying his work and having fun.

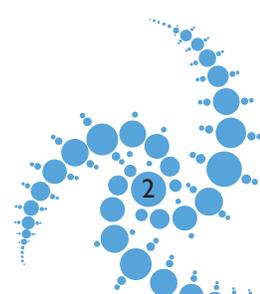
As a practitioner of complexity-inspired change work, developmental evaluation fills a void. The book is packed with comparative tables to assist with fitting the task to the context and wrestling with the inevitable boundary issues. Patton offers useful comparisons to systems thinking and a healthy degree of reflection on the degree to which complexity science is really a science. His calm and steady voice in a messy world is a welcome balm. I love the questions he offers.

For those new to complexity or ready to go the next level of working with the concepts, Patton’s descriptions bring the oeuvre to life. For example his careful explanation of the adaptive cycle starts with what it is, where it came

Developmental evaluation is defined as evaluation that fits best in complex environments where outcomes are unknowable and potential influences unpredictable.



Developmental Evaluation, by Michael Quinn Patton; The Guilford Press, 2011; 339 pages.
[Find it on Amazon.com.](#)



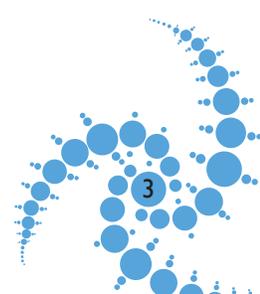
from, and how it has evolved to be applied metaphorically in many organizational and social situations. Then he takes us deeper to explain where development evaluation fits in the adaptive cycle. It is no surprise when we learn development evaluation lands firmly on the dark side of the equation. After all this is where the many unknowns truly live and where the heart of renewal begins. His descriptions of the traps and transitions lurking within the cycle are fresh and insightful.

If one were to quibble, the book does not do justice to Scott Kelso and David Engstrom and their contribution to understanding dynamical systems. In particular their book *The Complementary Nature* highlights how complementary pairs of seemingly opposing tendencies and its related coordination dynamics hold critical ways of seeing how dynamical systems form, organize themselves, change and grow. His references to the work just don't go deep enough. As a writer Patton has tried his best to bring order to content which mostly wants to just bust out and fall randomly on the page. His curatorial skills are admirable. As anyone who has tried to write about complexity knows the minute you start to write about one thing you end up with ten more ideas to get down, often wondering "how did I get here from there?" But that is the nature of the work. Run out and buy a copy of this book. You won't regret it. I have already read it twice and I am still learning. ■



Liz Rykert is the President of Meta Strategies and has been working with the concepts of complexity in non-profits and health care since 1994. She is a past board member of Plexus.

In January 2012 Liz will be leading a book club on Developmental Evaluation with her colleague Erica Bailey in partnership with the Plexus Institute.



Defining the Terms:

“Complex Responsive Processes”

Complexity theory introduces a whole new lexicon of terms and ideas. In this ongoing feature, we consider a “plain English” application of the terms.

Have you ever scheduled a meeting and wondered who would come, what they would say, where they would sit, what they would think, what they would say afterward, what would emerge as a result of the meeting or how you would feel about it? I have had that experience and probably you have, too.

Have you ever attended a party and made new friends, felt uncomfortable, started conversations and pulled out of other ones? I have had that experience and probably you have too. Have you known who would be there, what they would say, whether you would have fun, whether each person would enjoy the event and what they would say to each other afterward, if anything? While you might have known some of the information, your knowledge would have included some uncertainty. Hosting a party, like holding a meeting, involves people. It is a recognisable pattern of interaction formed by complex responsive processes of people relating to each other.

In June 2011, I hosted a shower for my stepdaughter, Jessica, in honor of her wedding. When I sent the invitations, I did not know for certain who would come nor what the outcome of the party would be. As it turned out, several of Jessica’s friends, her mother and other relatives came. However, a cousin and her fiancé’s mother did not. I felt anxious not knowing which food people would enjoy the most. Nonetheless, I enjoyed the surprises that emerged during the party. For example, I was touched by a tribute to Jessica read by her mother as part of an activity in which each person could tell Jessica and the group their favorite memory of Jessica. I could not have predicted fully nor controlled who would tell

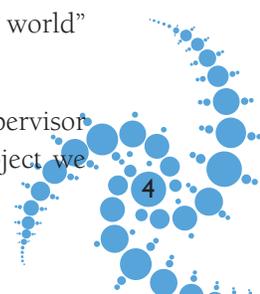
stories, what they would say, nor whether Jessica or the listeners would be touched or enlightened.

What is meant by complex responsive processes and why do we try to define it?

Complex responsive processes is a theory, which, when applied to human actions, asserts that “human interaction is patterned in the interactions between bodies and there is no need to look for any causal agency outside human interaction itself” (Stacey, 2010, p. 225). Complex responsive processes, themselves, could be understood as a “conversation of gestures” and as “the continuous local interaction of gesturing and responding in the form of significant symbols between diverse people” (Stacey, 2010). The theory, developed by Ralph D. Stacey and colleagues at the University of Hertfordshire to describe human interaction and the difficulty organizations have in achieving goals exactly as planned, notes that complex responsive processes have “the inherent capacity to produce emergent patterns of interaction across whole populations of humans” (Stacey, 2010). Fundamental to the theory is that of a “general human reality which is social interaction between bodies living in a physical world” (Stacey, 2010, p. 225).

In a meeting I attended several years ago, my supervisor turned to me and asked who would lead a project we

The meaning of *complex responsive processes* is continuously emerging. It is a descriptive term rather than a fixed one, and its meaning is contingent on the experience of the people in local interactions who develop and explore it.



had just been discussing. She had been informed a few days earlier that she was required to implement a new technology throughout our agency. Therefore, we held a meeting with an executive who had already implemented it in his office and was the agency's acknowledged lead for the program, to obtain information and begin a transfer of power. During the discussion it became apparent my boss would need someone to lead the agency-wide program. I already knew my boss was not enthusiastic about the program, but was under pressure to accept it. I paused for a moment, then told her I would lead it. The pause was complex as I mulled over various options. Until I paused, I didn't know whom I would name as the lead. I assumed the logical person to designate would be someone who worked on my team. However, I also knew the project was politically charged and highly visible, and that navigating the political aspects of the project would probably be more critical to its success than its technical components. I also knew that my boss's career was on the line. For those and other reasons I told my boss I would lead it.

As I mulled over her question, I could tell that neither she nor anyone else could decide how I would respond. By asking, rather than directing me, my boss had shown trust in my judgment while giving me a stake in her success. I accepted her trust in a state of mutual dependence, in which neither my boss nor I was fully in control of the outcome. While I was not surprised that she asked me who would lead the program, I was surprised as I reviewed the interaction later, to realize how little control my boss had over the choice I eventually made. While I had thought of myself as a "cog in the wheel" of a government machine, I could not accept that view any longer. Instead, I realized my own choices and those of others had an impact on my experience.

The meeting itself had been highly complex. It included a transfer of responsibility from another unit to mine. Scheduling the meeting had been imbued with uncertainty, and issues of power and influence had been important in deciding who would attend, the date and time of the meeting, and where it would be held. The meeting itself, and my decision to place myself in the leadership role for the project, turned out to be part of a broader national program in which others played a role as well.

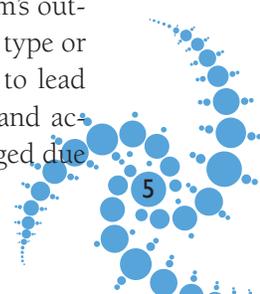
My boss had assigned me other, equally important programs to implement with little funding, and the new program competed for those resources. Nonetheless, over

time, my boss and I both became advocates of the technology she had been told to implement. As we became advocates, we built a staff of people with expertise in the technology and became recognized as role models for other agencies in implementing it. Therefore, the brief pause in which I considered my options contributed to the emergence of a broader pattern that was visible.

With regard to complex responsive processes, the story illustrates some points – and ways in which micro-interactions, such as the brief interaction between my supervisor and me in the meeting – can have broader implications. The story is imbued with uncertainty. It is also influenced by taken for granted assumptions, such as those related to who should make decisions about assignments and the basis on which such decisions should be made. In that sense, it is also imbued with questions of ideology and power, including those of deference, hierarchy and, in this case, gender. (My supervisor at the time and I are women in an industry dominated by men. In a different organization or time, ideologies of gender may have favored men more explicitly with different results.) I was quite clear as I considered my options, that no one, including the senior most executives above my supervisor in the chain of command, could control my decisions or the patterns that emerged.

The pause was part of a complex responsive process in which choices were being made by not only me, but others continuously, without being fully controlled by others. It illustrates a way in which choice, exercised by humans, contributes to unpredictability in human interaction and *can* contribute to novelty. While it might not be novel that I, as a supervisor, chose to lead the program, I *could* have arrived at a much more novel solution. For example, I could have asserted that a group of program managers who don't report to my boss or me, but who would have to live with the program's outcomes, should lead it jointly. An assertion of that type or another, such as naming a specific subordinate to lead the program, would have led to conversations and activities different than the ones that actually emerged due

Organizations are people interacting with each other, frequently in small groups... Such interactions are inherently uncertain and part of a broader patterning that cannot be predicted nor fully controlled.



to our different personalities, interests, backgrounds, passions, constraints, assumptions and other factors. Whether the emerging patterns would have been better, worse or just different is unknown.

If one assumes that such interactions occur throughout the work day for most people, one can assume that uncertainty is a common theme in business life and that issues of power and ideology affect patterns that emerge and are matters to be taken seriously.

Can complex responsive processes be defined?

I have been asked to define the term complex responsive processes for this article. A key tenet of the theory of complex responsive processes is that knowledge, itself, and meaning assigned to words is contextual and is part of the ongoing patterning of relations among people. A stark example is the emergence of meaning related to such metaphors as “file”, “mail”, “folder”, and “wall” in the context of the Internet.

By the same token, the concept of complex responsive processes is an ongoing, emerging patterning of interactions among living people in which the patterning of communication is influenced by ideology and power relations. The meaning of complex responsive processes is continuously emerging. It is a descriptive term rather than fixed definition. It is evolving and its meaning is contingent on the experience of the people in local interactions who develop and explore it. For example, as you read this and attempt to understand the concept, it is possible you are influenced by processes of communication, power relating, ideological concerns, and other factors that affect meaning. As the concept is explored, the meaning of it develops and is enriched over time. As a result, I prefer to describe the term rather than define it.

Why do we care about complex responsive processes?

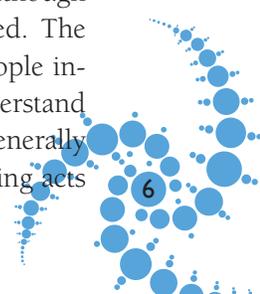
Ralph Stacey and his colleagues have developed the theory in the belief that better understanding the interactions of daily life helps us develop appropriate strategies and plans. The theory of complex responsive processes, with its attempt, in part, to help people understand the role of micro-interactions in business and all human relating, is a frame of reference that explicitly disagrees

with the mechanistic metaphor of organizational life, in which participants are cogs in wheels performing the tasks assigned to them by others, who are also cogs. It also disagrees that people are boxes on organizational charts. The theory argues, in contrast, that organizations are people interacting with each other, frequently in small groups, and that such interactions are inherently uncertain and part of a broader patterning that cannot be predicted nor fully controlled.

However, the theory recognizes the importance of ideologies, such as the spatial metaphors of relationships that appear in the description of the meeting above, and other factors, such as theories, emotions and beliefs that influence thinking, behavior and, therefore, patterns that emerge.

For example, early in my career, I assumed that a straight forward plan drafted by a few colleagues and me to modernize a large government agency could be implemented as written, provided employees were trained in the plan and given a copy to follow. We spent funds and countless hours, only to discover the affected groups were angry, didn't want the plan to succeed, and had no interest in its success. Ultimately, I realized such massive, long term plans had to be tempered with an understanding of uncertainty and the importance of local interactions, such as those among agency employees. As I became attuned to my own and other people's thinking, I came to understand that, as described in the decision made during the pause, above, people make innumerable choices that cannot be fully predicted nor controlled, affecting emerging patterns and therefore, ways in which the organization evolves. While my colleagues and I could influence change, just as other agency employees could, we couldn't design change in our agency and expect to achieve a specific outcome with certainty.

Today, I advocate for implementing large programs in small chunks and setting broad, general objectives, with frequent course corrections and the achievement of many short-term goals. The approach is based on the assumption that focusing on small, contingent interactions described in a theory of complex responsive processes, will lead to something useful in the short term, although the value of the achievements is not guaranteed. The programs on which I work are composed of people influenced by ideologies which each of them understand somewhat differently. People in the programs generally interact in small groups and participate in ongoing acts



of communication, power relating, decision-making, and pattern-making which no one fully controls. The effort to control the long term is left aside and resources are spent on the here and now where a difference can be made.

Where can I learn more about complex responsive processes?

The theory of complex responsive processes has been developed by Professor Ralph D. Stacey and colleagues at the University of Hertfordshire's Complexity and Management Centre. Sources of additional information include the following:

- Complexity and Management Centre website: <http://www.herts.ac.uk/research-and-innovation/social-science-arts-and-humanities-research-institute/business/complexity-and-management-centre/home.cfm>.
- Complexity and Management Centre's annual, informal conference. (The next conference is being planned for June 2012 at Roffey Park Institute near London.) The conference is an opportunity to meet faculty and current and former students of the Centre to learn more about the complex responsive process perspective and the degree programs of the Centre. For more information, contact Chris Mowles at c.mowles@herts.ac.uk or see <http://www.herts.ac.uk/research-and-innovation/social-science-arts-and-humanities-research-institute/business/complexity-and-management-centre/informal-complexity-and-management-conferences-cmc.cfm>.

Suggested Readings:

- Stacey, R. (2010) *Complexity and Organizational Reality: Uncertainty and the need to rethink management after the collapse of investment capitalism*, New York: Routledge.
- Stacey, R. (2003) *Complexity and Group Processes: A radically social understanding of individuals*, London: Routledge.
- Stacey, R. (2001) *Complex Responsive Processes in Organizations: Learning and knowledge creation*, New York: Routledge.
- Stacey, R., Griffin, D. & Shaw, P. (2000) *Complexity and Management: Fad or radical challenge to systems thinking?* New York: Routledge.

- Streatfield, P. (2001) *The Paradox of Control in Organizations*, London: Routledge.
- Suchman, A. (2002) "An Introduction to Complex Responsive Process"
- Theory and Implications for Organizational Change Initiatives", URL: [http://www.rchcweb.com/Portals/0/Files/Intro to CRP and implications for org change.pdf](http://www.rchcweb.com/Portals/0/Files/Intro%20to%20CRP%20and%20implications%20for%20org%20change.pdf). University of Hertfordshire and Anthony L. Suchman. [Accessed 04/30/2011]

By Margaret A. Miller, DMan

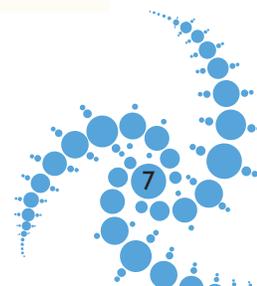


Margaret A. Miller holds the Doctor of Management (DMan) from the University of Hertfordshire (U.K.), Master of Science (Information Management) from Syracuse University, and

Master of Engineering Management (MEM) from the George Washington University. She is Chief, IT Investment Management for the US Office of Personnel Management (OPM) and adjunct professor with the Syracuse University School of Information Studies where she teaches a course on electronic government. Her doctoral thesis addressed issues of power, ambiguity, and processes of revealing and concealing in executive communication. Her research interests are related to executive communication in government and the selection and management of Federal information technology (IT) investments. She has strong professional interests in issues of privacy, public access to government information, and issues of budgeting for IT. She lives in Arlington, Virginia.

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emerging: **applications**

A Place for Healing:

Louisville Hospital emergency department and The Healing Place joined forces to help addicted men and women change their lives... with inspiring results.

He was in his mid 20s. He drank as much alcohol as possible, and when he couldn't get liquor, he drank aftershave lotion and other alcohol substitutes. He showed up in the University of Louisville Hospital Emergency Department repeatedly, disheveled, incoherent, stumbling, and sometimes belligerent. There seemed to be little hope for him.

"The diagnosis was wet brain syndrome—a brain saturated by alcohol continuously consumed," recalled Jay Davidson, president and CEO of The Healing Place, a nonprofit organization in downtown Louisville that helps homeless and alcohol or drug addicted men and women rebuild their lives. "Anna Smith talked to me about this young man, and the fact that he was going to die. She wanted to know if there was anything we could do. We picked him up and brought him back to The Healing Place, and found volunteers to be with him 24 hours a day, seven days a week."

"He didn't go anywhere without our alumni with him, to help him say no to alcohol and start living a positive life," Davidson continued. "It took a while to win

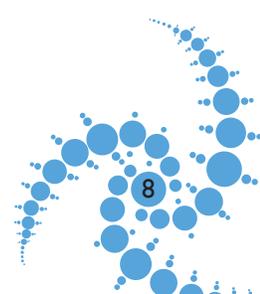
his trust, but we were able to put together 90 days of clean time for this young man. He gained weight, looked healthy, and regained his short-term memory. One afternoon we took him back to the emergency room, and he thanked everyone by name who had helped him—doctors, nurses and aides. No one recognized him. When he said who he was, peoples' mouths fell open." That was in 1994, and it was the beginning of a now-flourishing relationship between the hospital and The Healing Place.

A Different Kind of Epidemic

Anna Smith, RN, MSN, administrative director of emergency and trauma service at the hospital, had known for some time that alcoholism was draining resources and impacting morale in her department. Emergency medical staff members were frustrated because they had difficult patients they couldn't treat and couldn't discharge. Patients in the waiting room complained they weren't beings seen fast enough. The environment was noisy, hectic and turbulent. Around holidays and the Kentucky



The Healing Place, located in downtown Louisville, Kentucky, just ten minutes from the hospital.





Jay Davidson, CEO of The Healing Place



Anna Smith, RN, MSN, admin director emergency and trauma service; and Mark Spivak, RN, BSN, CEN, advanced practice educator

Derby in May the numbers of the intoxicated and the addicted always increased.

By 2007, the hospital's 27-bed emergency department in Louisville's inner city was treating a high volume of chronic alcoholics in varying stages of inebriation who sought help along with victims of other illnesses and accidents. Sometimes they were homeless, uninsured, and bereft of family support. Some patients were delivered by Emergency Medical Services (EMS) who found them passed out in the street. Sometimes the intoxicated patients were also angry, confused and resistant to care. Sometimes they had lost their medications, or ripped out the stitches on wounds doctors had recently sewn up. "We were treating their medical presentation, but not doing anything to impact their behavior," Smith recalled. "Often there was nothing medically wrong with them, but physicians didn't want to discharge legally intoxicated individuals. So the only way they would be released would be when their blood alcohol level fell below 0.08 percent—the legal definition of drunkenness in Kentucky." If the level was higher, staff would use a medical calculation to determine how quickly the alcohol could be detoxified in patients' systems. Then they let them sleep for a few hours. The system wasn't helping intoxicated patients, other patients, or beleaguered doctors and nurses. When staff started counting, Smith



Men and women struggling with addiction find mentors, and "whole person" healing.

said, they were amazed at the number of patients whose only immediate problem was intoxication.

Smith renewed her conversations with Jay Davidson. It was about that time that Mark Spivak, RN, BSN, CEN, who had been working in emergency psychiatric services, joined the emergency department as a staff nurse. He is now an advanced practice educator in the department. Smith and Spivak began talking about what intoxicated patients really needed. Alcoholism can be a never-ending cycle, Spivak said, and it was common for the same patients to show up repeatedly. "Anna was ahead of her time with this," Spivak said. "We wanted to provide patients with care that would really help them, not just shuttle them somewhere else."

"Treat and street can end with death," Spivak said. "We wanted to do better."

"They Called Them Angels"

The Healing Place is about a ten-minute drive from the hospital. The agency had lost funds, and Smith asked how to get alcoholics to real longer-term help. "They had experienced mentors, who helped people turn their lives around—they called them angels," Smith said. "We talked about what it would take to have angels come here to talk to our patients, and if there was a way we could discharge patients, who agreed, to their safe environment, as opposed to just keeping them here for hours and then discharging them."

With the support of CEO James Taylor, The University of Louisville Hospital provided \$200,000 in funds for a program that ran through 2009, and another \$200,000, in addition to help with the purchase of a van, to continue the program through 2011. Annual funding is expected to continue. Spivak says patients and staff have noticed a change for the better in the emergency room. Smith and Spivak say patients and the staff of doctors, 12 to 14 nurse and five to seven emergency technicians per 12 hour shift, find the department calmer and more efficient now. Both say the arrangement with The Healing Place has saved the hospital money in staff time and resources, though amounts are hard to estimate. "If you get burned out because you are sick and tired of dealing with angry unpleasant patients, we've lost the money we

When they started counting, physicians were amazed at the number of patients whose only immediate problem was intoxication.



have invested in you. If you are spending time with a patient you can't treat, that is not productive," Spivak said. "For the patients suffering from alcoholism, they can go from being a burden on the system to being contributing members of society, working, taking part in the community and paying taxes."

Extraordinary Success... And Endless Opportunity

The Healing Place has more people in its programs, which Davidson says is a good thing. The Healing Place has 50 full-time paid staff members, 15 part-time workers, and 36 volunteers. All are former alcoholics or addicts who have straightened out their lives, who can serve as role models for new arrivals and guides in a 12 step recovery process. The model is based on peer mentoring, Davidson explains, and the burden for individual change is with the client rather than the staff. Large groups actually work well. Staff members model appropriate behavior, and share experiences and

strengths. Davidson says The Healing Place, which has two campuses in Louisville and another south of the city in Campbellsville, helps more than 600 people a day in detoxification and recovery, for less than \$25 a day each, dramatically less expensive than hospital usage.

Spivak reports that in 2008, 909 of the 2,058 legally intoxicated patients accepted transport to The Healing Place, where they would be given a meal, clean clothing, and the opportunity to join one of three treatment programs. In 2009, more than 2,000 legally intoxicated emergency patients showed up, and 895 went to The Healing Place. Some patients have other alternatives to go to, and some don't recognize they have a problem.

In the third quarter of this year, 336 of the 356 eligible went to The Healing Place. In the last quarter, 380 of 416 eligible went.

Some drunken emergency patients are college students who have over-indulged,

"Treat and street can end in death. We wanted to do better."

Use of a Community Based Alcohol Treatment Program to Reduce Emergency Department Length of Stay at a Level I Trauma Center

Lindsey Siewert MSN RN CCRN CCNS ARNP Mark Spivak BSN RN Anna Smith MSN RN
S. Lee Ridner PhD RN FNP-BC ARNP John Myers statworld
University of Louisville Hospital, Louisville, Kentucky

Abstract

Acute alcohol intoxication has a large impact on bed usage in emergency departments (ED) across the country. Hospitals have medical and legal responsibilities that force ED beds to be utilized by acutely intoxicated patients that frequently remain in the ED until blood levels return to a legal limit. This can have a detrimental effect on ED bed availability.

Acting on their mission to provide appropriate care to the homeless and addicted within the community, the University of Louisville Hospital partnered with a local alcohol treatment program, to transfer medically stable intoxicated patients to a treatment facility. This poster will discuss the evidence based pilot project that provided an alcoholic treatment program while decreasing hourly length of stay at a Level 1 Trauma Center.

Evidence

Patients with alcohol addictions use health care services at much higher rates than other patients. Studies have shown that substance abuse treatments reduces these medical costs essentially by lessening the need for medical care. Interventions have been found to be effective when initiated in the ED as well as during hospitalization, with programs such as brief intervention.

Intervention

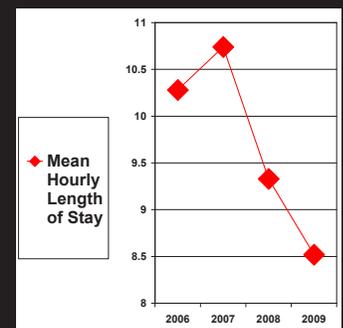
In 2007 the University of Louisville Hospital partnered with the Healing Place, a local alcohol treatment program, to provide a Community Assistance Program (CAP) for intoxicated patients admitted to the Emergency Department. The patients brought to the ED are assessed and if determined medically stable then the staff contacts the CAP Van and patients agree to be transported to the Healing Place for detoxification and counseling. Approximately 25% of patients that qualified for the CAP program accepted transfer to the Healing Place.

Outcomes

The data was collected by searching medical records for the ICD9 codes appropriate to patients admitted to the ED with legal intoxication and medically stable for the years 2006 and 2007 (pre intervention) as well as 2008 and 2009 (post intervention). The ED sees approximately 2500-3000 of these patients annually with 75% male and 25% female. The table below gives the mean number of hours that this population remained in the ED by year. Post intervention the hourly length of stay decreased each year and was statistically significant.

YEAR	Number of Patients with Alcohol Levels of Legal Intoxication Seen in ED	Mean Hourly Length of Stay in ED	Number of Patients released to the CAP
2006	3266	10.28	Pre Intervention
2007	2361	10.74	585
2008	2058	9.32	909
2009	2619	8.52	895

Outcomes



Benefits

Most patients admitted to the ED with legal intoxication that have no other medical issues are billed a standard amount that is not dependent on length of stay, therefore it was impossible to capture the actual financial impact of this intervention. However, reducing the amount of time patients were in the ED, decreases the workload for the staff, and allows for faster turnover of ED bed availability. This improves patient satisfaction by decreasing ED wait times.

and Spivak doesn't minimize the dangers of that. "But the constant drinker, who has slipped further and further down, whose whole life has been devastated, that person can get a second chance," Spivak said.

Spivak says he takes every opportunity to educate police, nurses, and emergency transporters about the program. "One outcome that we didn't anticipate is that the community really takes advantage of this program," Smith observed. "As word has gotten out, people from the Greyhound bus station, malls, stores, the airport and other emergency rooms have called, and they've gotten The Healing Place to send angels to them." Davidson says his agency has excellent relations with police, who often call for help for inebriated individuals. "We're not only helping people suffering from addiction," he said. "We're helping to keep the city visitor friendly."

Spivak, who says people call him "the talking nurse" has had countless conversations with hard drinking patients. A common thread, he says, is a hard childhood, hard luck, and lack of family and community support. "A lot of people who can manage when things are going well aren't equipped to cope when something bad happens, and they fall apart," he said. "If they have the right resources, they can thrive. I walk a fine line. I try to plant enough seeds to push people in the right direction."

Spivak recalls one man in his late 30s who frequently showed up in the emergency department drunk and bellicose. He had gotten jobs as a bouncer, so that he could drink at work, but he was often unemployed. Getting to know him, Spivak learned that the man had become estranged from his family as a teenager, but wanted to reconnect. Spivak located the man's mother in another state and called her. Weeping as she spoke, the mother

offered to meet her son at a bus station and welcome him home. The Emergency Department bought him a ticket.

He recalls another heavy drinker who frequented the emergency room. "Over time, we developed a nurse-patient friendship. He was depressed, suicidal. He had been assaulted while drunk, and had a head injury," Spivak recalled. "He said once he wanted to go outside and get some fresh air. When he didn't return immediately, I went outside, and found him. He had hidden a six pack in the bushes. He was embarrassed that I had caught him, but we had a long conversation about where his life was going. He had no family support. He had lost his job, and blown what money he had. He just couldn't get over the hump. He decided to go to The Healing Place. I ran into him six months later and he said he was doing great. He had tried and tried, and these things take time."

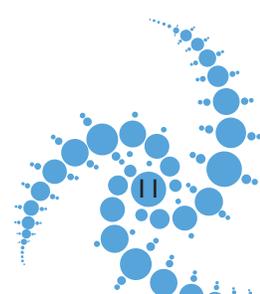
They located the man's mother in another state and called her. Weeping, she offered to meet her son at a bus station. The Emergency Department bought him a ticket.

Not every addict recovers. The young man diagnosed as having "wet brain" died of an overdose about a year after his hard-won 90 day clean period. "This disease kills. All of us are aware of death, and it is inevitable if we don't stay working on our programs," observed Davidson, who said he too is a recovering alcoholic. "It always hurts us when someone dies under the influence, but it's also a warning. It reminds us it could be us. But this man's story was a also turning point for the medical staff and for us at The Healing Place. We don't know who is going to make it. No one is hopeless. You don't give up on anyone. During the time this young man was clean, he reintegrated with his family, had quality time with them, and they were grateful." ■

By Prucia Buscell
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Staff and program participants, The Healing Place, Louisville



emerging **thought leaders**

A “Both/And” Kind of Dialogue

An interview between neuroscientist Scott Kelso and Lisa Kimball, President of Plexus

Neuroscientist Scott Kelso is a pioneer researcher in the field of coordination dynamics and a complexity scholar who has thought deeply about consciousness and the science of what makes us human. He holds the Glenwood and Martha Creech Eminent Scholar Chair at Florida Atlantic University, where he is also Professor of Complex Systems and Brain Sciences, Professor of Psychology, Biological Sciences and Biomedical Sciences. Kelso is also Visiting Professor of Computational Neuroscience in the Intelligent Systems Research Centre at the University of Ulster in Derry, N. Ireland. In a wide-ranging conversation, Kelso and Plexus Institute President Lisa Kimball explore agency, intention, leadership, paradox, the squiggle sense, the mysteries of the mind and the future of brain science.

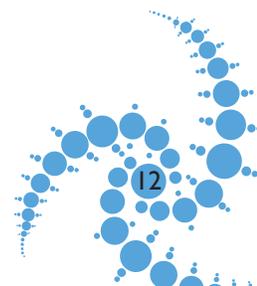
Complementary Pairs

Lisa: *One of the big topics in leadership development is moving toward “both/ and” thinking and the idea of being able to deal with ideas or options that are apparent opposites. In*

your view, is there a basis to say that we have a human capacity to deal with those kinds of things cognitively?

Scott: It might be a very rare human capacity! But it's more of a mindset problem I think. It was F. Scott Fitzgerald who said the secret of intelligence is the ability to keep two opposing ideas in your mind at the same time and still be able to function. No one said that was easy. That's maybe the big drawback. On the other hand, so many questions that we're confronted with in science and life seem to be of the “either/ or” type that it's useful to at least reflect that we are dealing with complex systems. There it may be a useful strategy to keep in mind what David Engstrom and I have called [‘the squiggle sense’](#), or the “both/ and” mindset.

So you hear about complexity science as the new science of emergence, and that says to many okay, now we're going to replace reductionism with emergentism—the parts don't really matter, it's the interaction between the parts that gives rise to emergent phenomena. The squiggle sense would say it does not make too much sense to replace reductionism with emergentism. Rather, let's



try to reconcile seeing things, not just from the bottom up, which is the reductionist style, but also from the top down too. The parts and the whole are a complementary pair—you can't have one without the other. They are co-implicative.

“...a major difficulty in perceiving and appreciating the complementary nature is its familiar invisibility. The tilde, or squiggle character helps us to not forget that complementary aspects are inextricably linked...though each retains its singular character.”

—From *The Complementary Nature*.

“reductionism~emergentism”

Lisa: *So that would be an example of a complementary pair....*

Scott: That would be a complementary pair in the context of scientific paradigms. Even sophisticated people will say we need to move toward emergent paradigms. And that may be true in the sense that you want to recognize complexity and that the whole is greater than or different from the sum of its parts. But at the same time you don't want to throw out the idea that you can decompose things into their parts, and that it's useful sometimes to do that. Synthesis~analysis is another complementary pair.

Lisa: *So why do you think we have a tendency to make these pairs? It seems like there's sort of a natural human attraction to them.*

Scott: Yes, it's very tied into the Western mind, and it goes back a long way at least to Descartes. We've thought of things in a dualistic way, and so we separated mind and matter. We've separated wholes and parts. We've separated individuals and collectives. If you say everything is a collective effect, and that's an emergent property of complex system, that's all very nice. Of course, you have to do some science on that, because many people talk about 'emergence' mystically and metaphorically. In complex systems, the parts can be really important and they often carry memory of the coupling with other parts and processes, and that can't be ignored. You can't just say these are collective effects and that's the only thing that matters. It's about understanding. It's not about pushing one notion over another.

Lisa: *Another tendency when we're talking about pairs is that we talk about balance, like when people talk about work/life balance. There's an assumption that somehow they're supposed to be equalized, but that doesn't seem to be underlying the squiggle sense. Somehow balance could mean we have the same amount of bottom up and top down, for example. So what does it mean to be thinking of them both at the same time?*

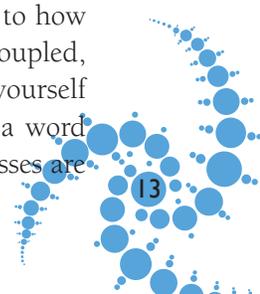
Scott: I think it allows you to step back and see, in the sense of understand, and we could talk about what we mean by understanding. Understanding for me means that from a scientific point of view, you choose a level of description and you try to identify what's relevant there, and what the relevant dynamics are—given very many aspects can be measured, but not all of them are relevant for a system to function. When you do, at least in some circumstances, it's very interesting that the dynamics are not fixed points and they're not chaotic. They're sort of in between—tendencies for attraction coexist with tendencies for repulsion. I call that metastability and I think it's telling us something really important. It means that apparently contrasting tendencies can coexist at the same time. In other words, metastability—beyond the world of states—is the origin of the 'both/and'. Notice metastability is just one regime of the dynamics. It's not that you replace “either/ or” with “both/ and,” because they're complementary. It's not that we're going to replace polarized thinking with living in ambiguity. No, the insight is to see that they are complementary too.

“either/or ~ both/and”

Lisa: *So wherever you are there's a complement, and at any level of the system, there's a complementarity?*

Scott: Yes, and I'm very excited right now, for example, with applying the principle of complementarity to how things are coupled. Everything in nature is coupled, from the molecular on up, and you can ask yourself what's the origin of the coupling? Coupling is a word used all over the place. Parts are coupled, processes are

“The secret of intelligence is the ability to keep two opposing ideas in your mind at the same time and still be able to function. No one said that was easy.”



coupled, events are coupled—coupling is a key aspect of understanding communication and coordination. Coupling is a very powerful word in science and other fields. So what's the basis or origin of the coupling? I'm excited about the idea that complementarity might be the origin of coupling. Imagine the parts are uncoupled; that's one complementary aspect, right? What's the other complementary aspect? Well, the other complementary aspect is coupling itself, parts~coupling. So if you only have parts, and you ask what the origin of coupling is, and if you take as self-evident that parts~coupling are a complementary pair, the answer is complementarity. Taking this to its logical conclusion, it's not as if you have a God up there by himself or herself dictating to us mortals that truth and grace and eternity are absolutes. God has a complement too. Good always comes with evil, so complementarity is the basis of that as well. If you have one aspect, and you don't consider the other, you're going to be led into some very monotheistic, polarized view of the world. And of course, my God against your God is the source of strife and disharmony and violence.

Lisa: *So if you're trying to accomplish something, ask yourself what's the complementarity of whatever you are thinking about?*

Scott: If somebody is saying this is the way it is, this is how you lead, this is how you should do things, then I think it's useful to think what the complementary aspects are. And then you see it's not that there's this one way. It's about a mindset. And the key point here is that it's not replacing one mindset with another. Complementarity is not a new “-ism”.

Lisa: *That's a key insight because a lot of people seem to think that we don't want to do top down anymore, so we'll just do bottom up...*

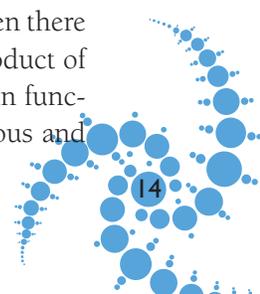
Scott: Some also speak about top-down in terms of downward causation. But this doesn't mean that bottom-up effects are not crucial as well. Or that vertical and horizontal integration are not both involved. I call it reciprocal causality. We seem to always want to replace one thing with another—one “ism” with another. That's not the picture I'm trying to convey at all. It's about a mindset that says there's always a complementary aspect, maybe several, and that allows you to open the thing up. The complementary mindset—the squiggle sense—generally leads to a broader awareness of things.

The Working Brain

Lisa: *Does the brain actually work differently when it considers something and its complement as opposed to only one thing?*

Scott: Recent work is showing that ‘at rest’ (as if your restless brain is ever at rest!) the brain's got a lot of ongoing spontaneous activity—what I call its self-organizing intrinsic dynamics—that we've not paid much attention to before. As the neuroradiologist Marc Raichle says, this is like ignoring the ‘dark matter’ equivalent of the brain. In the past, we've always tended to think of the brain as a reflexive entity, as an input-output kind of device. But in reality, the resting brain is consuming an awful lot of energy relative to the amount of energy that is used when a stimulus arrives. So the brain is not sitting there passively waiting for the world to excite it. Everybody kind of knows that, but it's interesting that the field has tended to ignore the brain's intrinsic, self-organizing activity. The assumption is that the action starts when there's an input and then the brain starts processing these inputs, making decisions in the context of previous memories, emotions and so on and eventually producing an output. But it turns out that even before a stimulus arrives, the brain is already in a very active state, and that its so-called ‘default mode’ or ‘resting state’ networks are already organized and actively ready to respond. It's these resting state networks, the self-organized intrinsic brain dynamics that's consuming most of the brain's energy for cognitive function. Typically, neuroimaging studies use some kind of experimental paradigm; let's say one that involves decision making. They then compare situations where you have to make decisions versus situations where you don't. The logic is that subtracting the brain images from the two situations should show which areas are active when you're making decisions. And then there are nice pictures that turn out to be mostly a product of the way you analyze the data. So once again brain function turns out to be a subtle blend of spontaneous and stimulus-dependent activity.

“The brain is not sitting there passively waiting for the world to excite it. The assumption is that the action starts when there's an input... But it turns out that even before a stimulus arrives, the brain is already in a very active state.”



We have to also recognize that living things are teleonomic, they are goal directed, and we don't really have much science for that. We've got the science of the living, and the science of the dead, and right now many people think that the science of the living is based on a dead molecule like DNA. In fact, the science of life is a lot more than that. How do you bring spontaneous self-organizing processes, emergent phenomena, into this picture? How do you bring in agency? It seems to me one has to see agency and spontaneity as complementary. Just like one has to see self-organization and natural selection as complementary aspects of evolution.

Lisa: *Makes me think of War and Peace, and the complementarity of free will and determinism. In one of the epilogues, Tolstoy raises the both/and question of how it can be possible for man to make choices within a framework where everything is thought to be determined by God. He suggests that it still matters what the individual chooses even if there is a larger cosmic "plan."*

Scott: Yes. It is very hard for us to see how free will and determinism can go together. Philosophers discuss this and it has seeped into neuroscience. We find it hard to reconcile these two notions, to see them as complementary aspects of one thing.

Lisa: *So is that like the particle/wave thing...you can't really see them both at once?*

Scott: I don't know. Wolfgang Pauli was called Einstein's conscience. He said the only acceptable point of view appears to be one that recognizes both sides of reality, the quantitative and the qualitative. The quantitative and the qualitative, the physical and the psychological, Pauli said need to be seen as compatible with each other. It would be most satisfactory if physics and psyche, matter and mind could be seen as complementary aspects of the same reality.

War and Peace, literature and science, with Niels Bohr, with Pauli, with Werner Heisenberg—these were some of the great minds of the twentieth century. What's new here, I think, is that you can actually demonstrate experimentally that complex systems like the brain can be in the either/or mode, they can be synchronized or desynchronized for example, but once you view the full complexity of the system, more often than not it's neither one nor the other. The system's sitting somewhere in between and the extremes, the either/or, are just sort of idealized states of affairs. Science likes to deal with

idealized states of affairs most of the time. We like to put things in neat categories. We have a tendency to impose order on the way we look at data. We like to say this is a pure thing, that's a pure thing and compare them. Hypothesis testing is like that.

Lisa: *Right, like whenever you're holding one thing constant while something else is happening. You can't really do that.*

Scott: That's a classic one, the dependent and the independent variable. But what can be an independent variable at one level can be a dependent variable at another—same with order parameters and control parameters, quantitative and qualitative. So it's more obvious in a way that these are not separate but related things. They both contribute to how we try to understand phenomena. People say we study the things too much. We're studying neurons. We're studying genes. We're studying cells. Then they say what we really need to do is understand the relations or the interactions between things. Again, that's fine as far as it goes, but you need to have both. You need to have both the dancers and the dance.

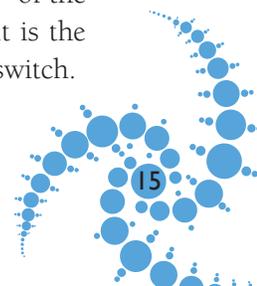
"multistability~metastability"

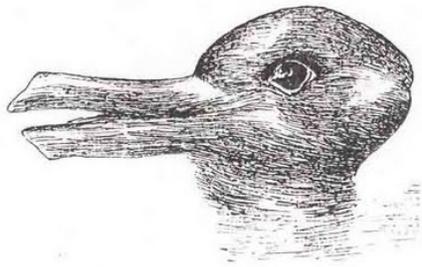
"In coordination dynamics, as symmetry is broken and couplings are altered, multistability, in which several functional states may coexist—gives way to metastability, in which only tendencies coexist."

—From *The Complementary Nature*

Scott: Laws and mechanisms are another complementary pair. Biologists love the word mechanism and physicist tend to look for laws. I just wrote a paper for the Philosophical Transactions of the Royal Society in London. I was invited to address the issue of multistability. Multistability means that you can have several solutions for the same set of inputs. Perception, for example, can be multistable. Like if you look at a Necker cube—or the duck-rabbit illusion, where the perceptual input is the same but your interpretation can change, it can switch.

"We have to recognize that living things are teleonomic; they are goal directed. And we don't really have much science for that."





Once you've seen both the rabbit and the duck, you can't "unsee" them.

Lisa: It's interesting with those kinds of things that once you're seen both, you can't not see them both.

Scott: Yes, that's a situation where you get several interpretations of the same physical input, and then, as you say, once you have a particular interpretation it can bias what you see. So it's that kind of a circularly causal kind of system. Multistability is seen at every level. It's seen in molecules. It's seen in societies. So it's a very universal property of matter and its organization-- yet the mechanisms by which it's realized are practically infinite.

If you're after understanding universal aspects like multistability, one way is to study a particular realization and that's fine, but it means you end up with a single mechanistic account of the phenomenon. Multistability in a system usually means it can exist in multiple states. Metastability means you only have tendencies or propensities, or predispositions. Multistability itself is a very general and lawful aspect of complex systems and it turns out that the more general the situation is, the more you've just got tendencies, not really states at all. We have coexisting propensities, predispositions and tendencies, but they are not to be equated with states of affairs.

And they're not really stable because to be stable means that you're in some kind of state for a long time, and things are not really like that. Yet they're not chaotic either. They're not unstable. They're not repelling states. So that's a key aspect of metastability. It's a kind of dwell-escape dynamic. Slowly and surely metastability is gaining leverage in our explanations of how complex systems behave. But it'll take time.

Lisa: So how are you studying multistability?

Scott: There's a huge literature in brain science. You see what it allows you to do, if you have the same physical input, and the brain, or the brain-mind, is switching

from one interpretation to the other, that's sort of an in-road into consciousness, or conscious awareness.

Because usually, you might think there's a mapping of the input to the perception, of the stimulus to the perception and that it's mono-stable; that there's some kind of direct mapping from the input into your awareness. Well, here's a situation where actually, your awareness switches spontaneously, and so you go after the neural correlates of that. The literature's full of it.

You can show this effect in the visual system, the auditory system, the tactile system, the motor system, in learning, and there are neural correlates. In other fields, such as molecular biology and chemistry, multistability is well known. Molecules can exist in multiple states. People have talked about this being crucial for selection...that selection would operate on a system that can be in multiple states, depending on the environmental circumstances. So it runs through a lot of scientific levels.

Lisa: How can we be more open to multiple interpretations?

Scott: Well, the primary example of multistability is the case of bi-stability. You have two alternatives for the same input. So the very objects of people's concerns already exhibit bistability. Neurons are bi-stable. They can be on or off and they have threshold properties that allow them to exist in several modes for the same input. People are finding these things out all the time. This is the nonlinear dynamics of the nervous system.

The complementary nature is about a mindset. It's about a way of looking at things and yin-yang is just an ancient example. Yin-yang is just a manifestation of a deeper principle called complementarity which arises from metastable dynamics.

It's how you look at the data. Scientists like to look at data in a very orderly way. And they like to see order in their data. They love order. Then they say the rest of it is noise. But signal and noise are a complementary pair. Metastability says you're neither purely integrated nor

“People say we scientists study *the things* too much. Then they say what we really need to do is understand *the relations between things*. But you need to have both. You need to have both the dancers and the dance.”



purely segregated, you're neither completely cooperative nor competitive.

You're neither individual nor collective, where those words are used as pure categorical states of affairs. I actually could live in a world where people were neither manic nor depressed. I could live in a world where there's neither peace nor war. In a way, I think it would be a much better place.

Lisa: *What's the complement to yin-yang?*

Scott: Yin-yang, the ability to see both sides, is the complement of polarization, the either/or. Yin-yang is reconciliation. And polarization~reconciliation is itself a complementary pair.

Lisa: *About complexity—there's sort of a fractal aspect to it because no matter where you are, you think you're sort of at a set point. But then it turns out there's a perspective that's bigger than that, that has the complement in it.*

Scott: Yes. What does fractality mean here? Does it really mean that the parts and the processes are self-similar all the way down, that there are multiple space and time scales involved?

Fractals are a way of seeing commonalities across scales or levels of description. Well, if there are similarities across scaling levels, then complementarity says there are differences as well.

Lisa: *I have an image of a magnet. It pulls its complement and yet it can also push its opposite away. That dynamic seems to create energy.*

Scott: Yes, that's interesting. If you have one complementary aspect, it implies the other. If you say the world is just about parts, and you don't think about the whole, then you can't understand the world. Dichotomy is very useful sometimes, but it can mislead too.

Acting and Agency

Lisa: *So let's get back to agency. So now, I'm an actor in this system, and I'm aware of the complementarities. And I need to make choices about something to do, and for a nanosecond I have to act with one selected perception rather than another. But as soon as I've done that, I've set up a whole other portfolio of choices that emerge from the first choice, and*

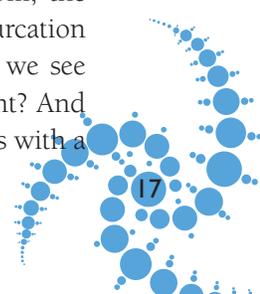
there are a bunch of new complementarities that are based from the new place I am, wherever that is.

Scott: You're talking about decision making. Yes, one should go into that a little bit because what I have in mind here is that you have alternatives and you can adopt one or the other. That's quite a legitimate form of thought. So bi-stability here would be the basis of the either/or. I can be in one state or the other. I have at least two states, and I can switch between them, and these switchings are sometimes called phase transitions or bifurcations. But then if I just open up the system a little bit more, 'break its symmetry' as we would say, I have a situation where former stable states become tendencies. Unlike states, tendencies have no stability. But both tendencies are now available and they co-exist—you are neither in one nor the other, and the repertoire of possibilities depends on many factors. If you're standing on a precipice, you're not thinking about the complementary nature. You're thinking about how to survive. Survival is one aspect, but not the only aspect. So it's only after you survive that you could maybe reflect on the conditions that got you there.

Lisa: *So what questions, or avenues are you most excited about exploring in your own work now?*

Scott: My passion is the science of coordination, coordination dynamics, which is how I came to all of this anyway. I think coordination is at the heart of understanding living things because you simply can't ignore functional aspects. It's not just physically inspired notions of self-organization that matter for coordination, you have to bring in teleonomy. You have the directedness of living things, and that's one area that I'm thinking about a lot. So I'm thinking about where agency comes from, the origins of agency. Was that some kind of a bifurcation that arose out of spontaneous activity, or must we see agency and spontaneity in a complementary light? And one way I'm investigating that in the laboratory is with a

“Scientists like to look at data in a very orderly way. And they like to see order in their data. They love order. Then they say the rest of it is noise. But *signal* and *noise* are a complementary pair.”



virtual partner interaction paradigm, which is very cool. It may open up some nice avenues.

Lisa: *Give me the short version of how that works.*

Scott: You have a human interact with a computer model of a human, albeit in a very restricted sense. You are now coordinating your hand movements with an avatar, which is driven by the equations of motion that Hermann Haken and I developed to describe your own hand movements. The key to coordination is bidirectional or reciprocal coupling. You modify the behavior of the avatar and it modifies your behavior. This issue of bidirectional coupling turns out to be pretty crucial for everything because nothing happens in nature without coupling, and that's where I think the complementarity story comes in big time, because I think that complementarity is at the basis of coupling. So you now have a human interacting with an avatar. They're coordinating and because you have control of what the avatar does, you can set it up to have an entirely opposite intention to the human. You can put the two in conflict. For example, the human is asked to coordinate in phase with the avatar, but the avatar's parameters have been set so that the avatar wants anti-phase. So the avatar is in conflict with the human, and they have to somehow resolve it in real time. So what we are looking at is the real time dynamics of this conflict~ cooperation situation between the human and avatar. In a coordination situation, who is the leader and who is the follower? The virtual partner interaction paradigm opens that up to experimental and theoretical study.

We've been doing research on leader~follower dynamics. You do a lot of work on leadership, Lisa. Well, a complementary aspect of that is followership, and that dynamic has to be explored. The leader~follower dynamic is very interesting and can be modulated by a whole bunch of factors. The interesting thing in this conflict circumstance that I've described is that at a certain point in time and for certain conditions about which I can't tell you specifically at the moment, the human has the phenomenological experience that the machine is messing with them. In other words, the human ascribes agency to the machine.

This opens up the possibility of obtaining objective descriptions of so-called subjective phenomenological experience, an issue that in my view has been swept under the carpet in many fields and science in general.

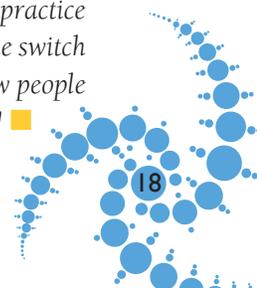
Psychiatry, for example, looks for objective descriptors of mental experience all the time now and in doing so sometimes fails to see the intimacy between the subjective and the objective. We do not have, outside of literature, a very good language for subjective first-person experience, and moreover, we do not understand what the objective correlates of subjective experience are. It's a big gap.

So that's one area. The complementary nature sees the object~relations issue, the subjective~ objective distinction as complementary and is interested in understanding what that complementarity is all about. So I think, for example, that when a human is trying to coordinate with an avatar, there's a discrepancy between what the human's doing and what the avatar is doing, and that this discrepancy, which can be observed and quantified, evokes the human's reaction. So there's a certain discrepancy between what's expected and what actually occurs, and this leads to the triggering of phenomenological experience. That looks to me to be an interesting line to think about.

Other areas of research have to do with the individual and the collective and again, the focus is more and more on how brains interact. These questions are very much tied to the complementary pairs of individual~collective, cooperation~competition, integration~segregation and so on, all of which pertain to how things—from cells to societies—are coordinated or organized.

I would love to get your notions on that and how this kind of mindset, which I think you have, might be useful. I'd be very interested to hear your thoughts on how this kind of mindset can be effectively transmitted to others.

Lisa: *For sure we've discovered that people need to experience this way of thinking rather than reading or being told about it. One of the approaches we've used is introducing the notion of "wicked questions" as a way of reframing challenges that appear to be dichotomous. For example, how can we maintain centralized quality standards while allowing room for local innovation? That's a more generative question that "How can we make everyone implement this program 'right'?" Giving leaders an opportunity to practice and reflect on this different way of thinking can flip the switch so it's not just an exercise at a meeting but rather how people think all the time. That's the next mountain to climb!* ■



Meet Andrew Pyle

Doctoral Communication Student and recipient of the new Plexus Fellowship Honoring Henri Lipmanowicz

As a graduate student observing officials trying to explain what was happening in the Gulf of Mexico during the biggest environmental disaster in the U.S. history, Andrew Pyle got a first-hand look at crisis communications.

When the Deepwater Horizon drilling rig exploded and sank 5,000 feet below the surface of the Gulf of Mexico, thousands of gallons of oil began gushing into the gulf waters and adjacent marshlands. The explosion killed 11 workers and the leaks threatened hundreds of miles of coastline in four states, polluting waters that are home to dolphins and sea birds as well as prime commercial and recreational fishing.

Officials at the Unified Area Command Center, headed by Retired Coast Guard Admiral Thad Allen, called Robert Ulmer, who chairs the Department of Speech



Pyle is interested in the intersection of crisis communication and complexity.

Communication at the University of Arkansas, for help. Ulmer has researched the impact of crisis communication, and written five books on responses to man-made and natural catastrophes. As his student, Pyle spent time in Houma, LA, where much

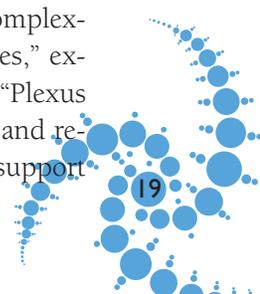
of the BP recovery efforts were coordinated. He interviewed the public information officers and developed his master's thesis on lessons learned.

"It's important to understand models of crisis communication, and the ethical considerations of you how present the material," Pyle said. "When you develop a message about hazard, you have to use language that is accessible, without too much jargon, and if you have to use jargon, it's important that you explain it."

Pyle says he is interested in studying how fatigue impacts people such as fire fighters, law enforcement, military and emergency personnel when they have to communicate in emergency and high stress situations. He is especially interested in the intersection of crisis communication and complexity.

Pyle is the first recipient of the Plexus Institute Henri Lipmanowicz Fellowship, created this year to honor Lipmanowicz's contributions as a founder of Plexus Institute and a complexity science practitioner. Lipmanowicz, the chair emeritus of Plexus, recently retired from a distinguished career at Merck, where he was president of the Merck Intercontinental and Japan Division, and a member of the Management Committee.

The purpose of the Plexus fellowship program is to give Plexus an opportunity to connect with and learn from the new generation of thinkers. "We want to develop and nurture relationships with a growing network of young scholars who are exploring applications of the complexity framework from a broad range of perspectives," explained Plexus President and CEO Lisa Kimball. "Plexus fellows help keep us up to date with the people and resources they encounter in their programs. We support



fellows by connecting them with Plexus' vast social network of scientists and practitioners, including them in meetings and projects, and giving them opportunities for sharing their work with our community.”

Lipmanowicz says he would like to see young people learning about complexity concepts and practices while they are in school. Among young children, quite a bit of self organization takes place as they work and play in small groups, he observed, and teachers tend to facilitate more than lecture. At high school and college level, young people can learn about liberating structures and other methods and practices. What interests him, he said, is “ways for young people to work together, learn together, learn from each other, and to support each other in ways that are consistent with understanding the world as a complex system, instead of the top-down world in which they tend to have been educated.”

The idea of the fellowship, he said, would be for the fellow to have access to people from different fields who are closely associated with Plexus and its networks, who would be available to talk, listen, discuss and arrange visits. “I would be available as a mentor,” he observed. “It’s something I enjoy doing, and I think others would.”

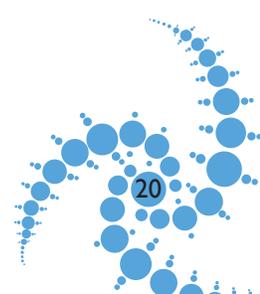
Pyle suspects the culture and expectations of people doing emergency work tends to prevent them from admitting they need rest, even though fatigue can impair the ability to deliver a clear and accurate message. He believes the public benefits from open, accurate communications, because planning and decision making is better when information about risk is clear and accessible. His thesis research suggests several lessons for organizations. They need to have a crisis communication plan in place before a crisis develops, they need people trained in crisis communication, and information staff members need to have internal discussion about the importance of rest.

Pyle also wants to explore how crisis communication theories and practices apply to different cultural contexts, and how educational environments can help students develop real world applications.

“Henri and I have already talked for an hour, and I really appreciate the time he took with me,” Pyle said. “He is great to talk to, he has great advice, and he really helped with perspective.” Their conversation included thoughts on the impact of fatigue not only in rare events, such as hurricanes or man-made environmental disasters, but the environments in hospitals and emergency rooms where stress, emergencies, and fast pace are the norm.

Pyle was born in Texas and lived in Louisiana before moving to Arkansas, where he attended high school and college. He’s an avid reader of academic studies and fiction. He recently finished [Peter Sandman’s](#) *Responding to Community Outrage: Strategies for Effective Risk Communication*. He also enjoys novels, and recently finished the *Stieg Larsson* trilogy that ends with *The Girl Who Kicked the Hornet’s Nest*. He loves being out of doors and exploring natural environments. He married his high school sweetheart, Sarah, and the couple now lives in Fairfax, Virginia. He has started his doctoral program in communication at George Mason University, and *he would eventually like to teach communication at the college level.* ■

The culture and expectations of people doing emergency work prevent them from admitting they need rest, even though fatigue can impair the ability to deliver a clear and accurate message.



Meet Our Members

Beverly A. Parsons, PhD



Knowing that systems thinking has been a dominant theme of my professional life for 30-plus years, I decided to count the number of books on this topic on my bookshelf. I was at 62 books when I ran across a small 1970 paperback—Kenneth Boulding's *A Primer on Social Dynamics*. It still had the University of Colorado Bookstore

sticker on it. That's where it all started.

During my Ph.D. program at the University of Colorado-Boulder in educational research and evaluation, my advisor suggested I take Boulding's course. I lasted two weeks. I could not, for the life of me, figure out what he was talking about—open systems? closed systems?

Soon after, while living on the Pine Ridge Reservation in South Dakota and finishing my dissertation, the light dawned. I could see systems everywhere—the tribal systems, the BIA, the public school system, informal community systems, the state education system—and how the “systems” were contributing to such a high school-dropout rate. My mind was stretched by the systems thinking concept and has never been the same.

For the next 15 years, I kept building my understanding of systems thinking as I worked across the education system from schoolhouse to statehouse including ten years working with governors and legislators on state education policy through the Education Commission of the States (ECS).

The concept of complex adaptive systems (CAS) initiated another stretch six years ago. Wow, what a view as my InSites colleagues and I applied CAS concepts to our work in education, social services, and health. In 2007, I consolidated my thinking at that point when writing the W.K. Kellogg Foundation's publication, *Designing initiative evaluation: A systems-oriented framework for evaluating social change efforts* (see www.wkkf.org).

Currently my two primary applications of systems thinking are (a) in conducting a national cross-site evaluation of four multi-level R&D projects focused on the prevention of child abuse and neglect among very young children (see www.qic-ec.org) and (b) a recently funded National Science Foundation grant to build the capacity of evaluators of STEM (science, technology, engineering, and mathematics) education programs. It builds on an earlier NSF grant in which we developed adaptable evaluation-capacity-building online modules (see http://www.insites.org/CLIP_v1_site/index.html). We're now building Evaluation Communities of Learning, Inquiry, and Practice about Systems (ECLIPS) to eclipse current evaluation approaches.

Completing a certification program in Sustainable Business this year at the Bainbridge Graduate Institute brought together my personal and professional life through yet another level of integration on my systems thinking journey. This program gave me a deep consciousness of the importance of systems thinking if we are to address the perilous state of our natural environment in the context of social justice and economic well-being. My favorite recreations of skiing, kayaking, and hiking are intimately tied to the beauty and sustainability of the earth while my grandchildren's well-being.



is tied to how well our generation can move from an individual focus to rebuilding the common good. It's all interconnected.

By the way, I'm also an associate of the Human Systems Dynamics Institute (www.hsdinstitute.org) and will be teaching with Glenda Eoyang in the HSD Institute's certification program in Portland, OR starting in January 2012. Come join us.

J. David Flynn



I was surprised and delighted when asked to write a personal profile for Plexus. By coincidence it happens just as my coauthored book, *Making Social Change: Understanding How Complexity Science Explains, Predicts and Possibly Controls Major Social Change*, is published.

I have a complicated, perhaps complex background. My undergraduate degrees are in Engineering Physics and Mathematics from the University of Saskatchewan, but my master's and doctorate degrees are in sociology from Cornell University.

I worked as a local administrator in the Northwest Territories before becoming Chief of Development in the NWT Department of Local Government. After graduating from Cornell I became a professor of sociology at King's University College in London, Ontario, where I specialized in research on community and social change.

Since retiring seven years ago, Jim Hay, former CEO of Dow Chemical Canada, and I have worked together on applying chaos theory and complexity science to social change. First we organized a multidisciplinary group on complexity science where we developed a theory of change based on Stephen Wolfram's four states (chaos, complexity and two kinds of order) along with the social science variables of differentiation and centrality, to explain changes in social systems. We have presented and published a series of papers on our work, culminating in our book where we apply the theory to small groups, large organizations and the institution of art before and after the Renaissance.

We also have a website, makingsocialchange.com, which is designed partly to promote our book but also to stimulate discussion of our ideas.

Other projects I am working on are to complete a book tentatively entitled, *Community as Story*, which applies our theory to the field of narrative sociology. As well, I am writing up a trip hitchhiking around the world which a friend and I took more than fifty years ago. It was through that trip that I came to marry my wife, the cousin of my co-traveler. Finally, I have become fascinated with birding and my wife and I try to travel at least once a year to Central and South America to observe another kind of changing community, that of birds.

Most interesting of all, is fostering the interests of our four grandchildren in both bird watching, and, maybe, in complexity science.

Jules Muis: An Accountant's View of Complexity



I have always looked at complexity, the man-made sort that is, with healthy suspicion. It probably has to do with running into a one liner, very early in life, attributed to an anonymous, aspiring Dutch poet: "Any truth that is too big to be seen is probably smaller than you can see it."

His observation saved me a lot of agony in 50 years plus of wandering and wondering in accountant's land—a professional landscape littered with bodies of the overly optimistic and the overcautious.

Fast forward some fifty years. It is thanks to two tireless Plexus warriors, Lisa Kimball and Sharon Benjamin, that I discovered complexity as a study in its own right: one that manages to excite legions of devotees in the art and science of cracking....simplicity. I humbly joined their students.

I am a product of vocational training in the art of accounting and auditing; have no academic credentials. But I have been a voracious amateur consumer of academia's riches, among other things. I used to get intellectually drunk on research attempts to look at accounting through the lens of linguistics, anthropology, information



Jules and his friend Keeper

theory, communication theory, organizational-behavior, chaos theory. Even entropy was thrown into the mix—regretfully, all to little practical effect.

I kept up with academic research till late in my career. But the emergence of the mutual citation community in academia and the tendency to drop verbs in favor of intractable adjectives

and extra-planetary nouns in research papers made me more suspicious about research relevance and integrity. If false comfort by financial statements is the result, users beware!

Becoming an accountant was not my first choice. My first career fantasy was a cartoonist—the epitome of making complexity (look) simple, with a powerful message as the bottom line. Helas, my drawing skills did not meet the challenge.

But I soon discovered that an accountant is the next best thing to a failed cartoonist, not only because accounting also has a bottom line. Any set of financial statements is an approximation, sketch, a cartoonist view, of an extremely complex business happening. It is sometimes fact, sometimes fiction, but in its bottom line always judgment driven.

Balance Sheet is a snapshot of an entity's complex position at a given time. An Income Statement is a moving picture between two snapshots, without the sex that is.

The Explanatory Notes to any set of accounts are to inform the reader further. Generally, the longer they are, the more they are designed to conceal rather than reveal, mostly by overly complex language. Financial statements will never be witty, but can be ridiculous. Witness the financial statements of our financial institutions over the last five years plus.

Having spent 40 years in practice, having gone through some five generations of financial and professional cri-

ses, it was in 2004 that the optical complexity of our newly 'reformed' (remember SOx?) financial systems, micro and macro, made me weary. It was a complexity that had nothing to do with the innate nature of the financial reporting, but was strictly man made. It was a complexity best summed up by 'having too many unknowns in the equation', partly by design, partly by default. It was aimed, as we belatedly discovered, at pulling the proverbial fast one on thy neighbor, preferably before he pulls one on you.

Not that we could not have known. The early warning signs had already been well-described in charting 400 years of financial crises, long before the present crisis took place.

In 2004 I went as far as a public confession—when financial actors, accountants not exempted, were still have a ball—that I no longer understood how it all added up. I reached the ominous conclusion that we were heading for an inevitable financial crisis, mainly for the same reasons as the previous ones—including the 17th Century Dutch tulip bulb crises.

Finally, there is not much difference between slicing and dicing tulip bulbs or subprime loans if the conditions are right. Complexity induced smoke and mirrors, fuelled by greed, combined with a financial architecture propped up by black boxes, makes the perfect environment for a perfect storm.

I have since gone for counsel in the elaborate body of research on complexity theory and its toolkits to see how its accumulated wisdom could have made a difference in, or functioned as an early warning for, what has sadly become the total wreckage of a financial system. And I basically found it wanting for answers. For the same reasons academia missed the boat in forewarning the impending bankruptcy of the financial system as we have known it for generations: too many stovepipe organizing principles in the development and exchange of knowledge and research; the challenges of converting excellent piecemeal toolkits into something that adds up, makes

“I discovered that being an accountant is the next best thing to a failed cartoonist. Any set of financial statements is a sketch, a cartoonist's view, of complexity. It is sometimes fact, sometimes fiction.”

—Jules Muis



holistic sense, or tells us it doesn't; human nature, human nature, human nature, and the upstream challenges of unmasking a system designed to give a competitive edge to the few at the expense of the rest.

I do not know how complexity theory could or would deal with the devious man made concoctions that wrecked our financial system.

Sometimes anonymous poets do better, at least in the discovery phase.

Kristen Barney, MA, MSOD



Listening is the centerpiece of my way of being with others, and people seem to respond well to this and open more fully to their own potential. Many strands from my background weave listening into my consulting, leadership development, coaching, and capacity-building work, which is largely in the nonprof-

it arena. For example, for more than a decade, I supported innovations in sustainable national planning in developing countries, where there is great need to listen to experiences, world views, and visions. For fifteen years, I have also been practicing the Japanese healing art called Reiki, which means “universal life force” and involves listening through the hands. In my early academic career, I listened to the voices of countless writers not only in their word choices, but also in the structure and rhythm of the narrative and historical context. Later I extended this ability through completion of a master's degree in Organization Development.

For the last five years I have been putting listening to work, primarily with nonprofit and individual clients in areas such as organization development consulting, capacity building, coaching, and leadership development. I have learned to listen for the “wrinkle” in an organization's or individual's fabric... the beautiful internal paradox which is the engine, nourishment, and beacon for their passion and growth. Very often, it is the principles of complexity science and appreciative inquiry which provide inspiration and tools to help my clients move forward. Clients have included a nationally acclaimed school for the healing arts, the Institute for Conserva-

tion Leadership (www.icl.org), and Our Task (www.ourtask.org).

Listening to my own wrinkle in recent months has inspired me to transition to working again with multi-stakeholder projects, as a facilitator and consultant. Currently I am seeking opportunities to facilitate and consult on projects addressing complex issues that are larger than any one group or sector, thereby engaging stakeholders across boundaries.

I began this transition into cross-boundary work by developing a Washington-DC based speaker series connecting the fields of organization development and international/community development, now led by a colleague, which you can learn about at www.cbodn.org/odcd_sig. At this time when creating a relationship with the Earth and all life on the planet is crucial, we need to listen to each other across boundaries and help each other experience our systems as fractals so that wisdom, compassion, and understanding can guide our choices.

Some inspirations in my life include the work of the Presencing Institute, the Long Now Foundation, Iyengar Yoga, and learning/playing in my community garden patch. I welcome inquiries or comments at kristen@openingcreativity.com and encourage you to visit my blog at www.openingcreativity.wordpress.com.

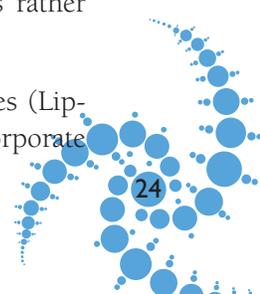
Lucia Dura



My classroom is abuzz like a bees' nest. It is alive with the energy of students sitting face to face, knee to knee, making knowledge together. We break off into pairs and then quads—1-2-4-whole group—to problem-solve grammatically incorrect sentences. We distill key learnings from readings using fishbowls. And

we structure peer reviews of student papers like consultations initiated by the writer—it's called Troika Consulting—who uses two classmates as resources rather than judges of his or her work.

Complexity science-inspired liberating structures (Lipmanowicz & McCandless) are common in the corporate



world and certainly at Plexus meetings. I am one of several faculty experimenting with them in the classroom.

After teaching in some form for almost ten years, I completed my PhD in July and began my career as an assistant professor of Rhetoric and Writing Studies this fall at the University of Texas at El Paso (UTEP). Prior to the start of the semester, I was part of a Liberating Structures (LS) workshop with Henri Lipmanowicz and Arvind Singhal. Building on the momentum from the workshop, a small group of new and veteran faculty members formed a Liberating Structures affinity group committed to practicing and documenting our use of LS in the classroom.

While I had experienced LS at Plexus meetings and had practiced facilitating a few times, I was a bit nervous about infusing my teaching practice with something new. It was risky. Nonetheless, a hunch propelled me to frame the two undergraduate Workplace Writing courses I teach, where business students are expected to learn business writing literacies, with liberating structures.

I began the semester with speed networking, and a majority of students commented that it beat the traditional “say something about yourself” routine in which they tend to not remember names or interests. Mid-term evaluations were a mixed bag. While the majority was content with getting to know each other, using each other as resources, and spending class time face to face, some were also uncomfortable and skeptical. Would they become better writers in my class? Did I need to lecture more? I pulled the rug out from underneath them. And



Dura uses “liberating structures” in the classroom. “It was risky...Would they become better writers? Did I need to lecture more?”

really, I pulled the rug out from underneath myself as well.

At institutions like mine, research is a priority. If done efficiently, it can inform teaching. I have been a student of complexity science for four years—my dissertation explores positive deviance through a rhetorical lens and the angle of complexity has helped inform my theories of rhetoric. Yet, as this semester progresses, I am noticing that the practice of teaching, or rather facilitating, is informing my research. The habit of LS practice and reflection has given me greater confidence as a facilitator and member of any given group. I have become a better listener, and a believer that “letting go” in theory is good as it indicates openness, but letting go in practice can be life-changing. The students with whom I work can judge the whole process once the semester ends and beyond, but there are days now when the buzz of LS in the classroom makes us feel like maybe, just maybe, we have the power to fly off—with or without the nest.

ldura@utep.edu

luciadura.wordpress.com

James W. Begun, Ph.D.



Plexus has been part of my life for well over a decade, and it's been fun to watch it emerge. While most of my recent involvement in Plexus has been at the periphery, I enjoy watching where complexity is taking people—the new directions as well as the threads and continuities that persist.

One challenge for the complexity community is to engage people with diverse backgrounds, interests, responsibilities, and needs for learning. Growth in the size of the community allows for differentiation—for more interest groups of like-situated individuals to form. I've particularly been struck by the nursing community in complexity, where participants combine new learning with a thirst for transformation in health care delivery and the role of nursing. The most innovative leap in applied complexity science education has been taken by nurses; the new clinical nurse leader (CNL) role is an example.



While it's exciting to watch complexity thinking spread, I'm struck by the inertia around complexity in my workplace, academia. The prevalent model for success in academia is to "stick to your knitting"—specialize—all of your career. Moreover, most of us learned to knit many years ago when we pursued our doctoral degrees in one of the many academic disciplines (mine is sociology). The social structure of academia forestalls any dramatic shifts to interest in complexity science, simply because complexity science is new and transdisciplinary. New knowledge is trumped by the social structure of academia unless it fits that structure well.

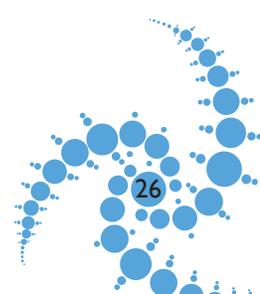
The strongest force for change in academia is bottom-up. Young students have grown up in a radically more complex and connected world. Young students are not impressed by the revolution in scientific thinking that occurred 20 years or so ago. In fact, they're unimpressed if I talk about anything that happened more than 10 years ago. The complexity revolution that I lived through is just normal life to them. A management textbook I use offers guidelines for when we're overwhelmed with those 200 daily e-mails. Students today say, "200 e-mails? What's the problem? We'd like more! (And we don't use e-mail anymore, by the way.)"

So, academia is a great place to emerge, as long as I listen to my students rather than my colleagues, and tune in to Plexus and similar innovative collaboratives.

Contact: begun001@umn.edu ■



No way is he going to make that shot! Begun at New Mexico's Black Mesa golf course.



PlexusCalls

These free calls are among the most popular offerings of Plexus Institute. Mark your calendars now to be part of the upcoming calls.

Building on Human, Social, Cultural Strengths

Guests: [Angela Blanchard](#), [Bernard Mohr](#), and [Jennie Silbert](#)

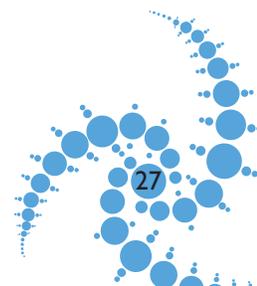
Friday, January 6, 2012

1-2 PM Eastern Time

641-715-3300, access code 485743#

[Angela Blanchard](#) is president and CEO of the Houston-based [Neighborhood Centers, Inc.](#), which serves 250,000 clients annually through 60 facilities in the Houston and Gulf Coast regions. She is a pioneer of asset based community development work that focuses on the human, social and cultural strengths of vulnerable populations. The 104-year-old agency, which has a \$258 million operating budget, offers community initiatives that include education, immigration and citizenship outreach and advocacy, senior services, economic development, tax services, and disaster relief in the wake of devastating hurricanes. The agency helped welcome many victims of Hurricane Katrina to the Houston area after their homes in New Orleans were destroyed. Ms. Blanchard has received numerous awards for her advocacy on behalf of working immigrants, her excellence in nonprofit leadership, and achievements in community service. She was recently named ARAMARK Building Community 2011 National Innovation Award Leadership Honoree. [Bernard Mohr](#) is cofounder of Innovation Partners International, <http://www.innovationpartners.com> a professional services firm dedicated to the notion that participative and strength based processes are the fastest and most effective ways of dealing with our ever increasing challenges and pace of change. Mohr supports clients within healthcare, manufacturing, retail, pharmaceuticals, education and government in creating sustainable

value and better places to work. His focus is the design and management of more flexible and effective ways of working such as multi-stakeholder networks, collaborative self organizing teams and shared governance processes. His approach to organizational innovation draws on both design and Complexity Sciences as well as the Applied Behavioral Science. [Jennie Hetzel Silbert](#) is a partner and co-founder of Innovation Partners International who has worked with Angela Blanchard. Jen has led strategy development and community change initiatives in cities, schools, social enterprises, rural American Indian villages, and Fortune 500 board rooms. She is based in Rhode Island. Some of her clients include the Rhode Island Department of Education, Neighborhood Centers Inc., the United Nations Development Programme (UNDP), the American Red Cross, the U.S. National Intelligence Community, U.S. Department of Justice, Sprint-Nextel, the US Agency for International Development (USAID), YMCA, Lutheran World Relief, and the Department of Health and Human Services. She holds dual BS degrees in economics and international studies from American University, a master's degree in organization development from Johns Hopkins University, and she is proficient in Spanish. Her recent publications include the book "Positive Family Dynamics: Appreciative Inquiry Questions to Bring Out the Best in Families" (©2008, Taos Institute, co-authored with Ada Jo Mann, Dawn Cooperrider Dole, and Diana Whitney).



Simple Rules of System Thinking for Complex Global Issues

Guests: [Louise Diamond](#) and [Birute Regine](#)

Friday, January 27, 2012

1-2 PM Eastern Time

641-715-3300, access code 485743#

Louise Diamond, PhD, has been applying systems thinking to critical issues at every scale of human interaction for more than 40 years. In 2008 Louise founded [Global Systems Initiatives](#), where she brings a transformative whole systems perspective on complex global issues to the policy community. In 1992 she co-founded (with Ambassador John McDonald) The Institute for Multi-Track Diplomacy (IMTD) in Washington, D.C. There she worked as a peace builder in places of violent conflict around the world, helping adversaries to bridge political, historical, cultural, and psychological divides to find creative solutions and build cooperative partnerships.

She has written four books and numerous articles, chapters, and essays on peace and other international concerns. In 1989 she produced a film on the Israeli-Palestinian conflict, "Many Voices, One Song." She brings a background in applied human behavior, organizational transformation, and systems dynamics to her activities as consultant, coach, trainer, author, and public speaker. She earned a doctorate in Peace Studies in 1990; a CAS degree in Human Resource and Organizational Development in 1974; and a B.A. from Oberlin College in 1966.

[Birute Regine](#), EdD, earned her degrees from Harvard in developmental psychology, is a researcher and writer who specializes in the dynamics and development of relationships and women's role in the workplace, and is trained in gestalt therapy. Regine speaks to corporations and at national conferences on transforming the workplace to be personally fulfilling, humane, and economically successful. Birute founded [Harvest Associates](#) with Roger Lewin in 2000, and they coauthored wrote *The Soul at Work: Embracing Complexity Science for Business Success*. In paperback, it is renamed [Weaving Complexity and Business: Engaging the Soul at Work](#). This book reveals organizational transformation and complexities and a new way of understanding it. Birute interviewed more than 50 women in the U.S. and other countries

for her most recent book, [Iron Butterflies: Women Transforming Themselves and the World](#).

Beyond Chemistry with the Periodic Table

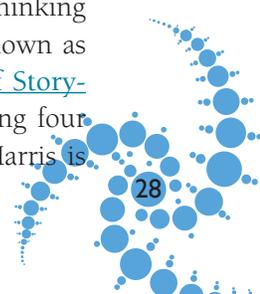
Guests: [Cameron Norman](#), [Andrea Yip](#), and [James Harris](#)

Friday, February 24, 2012

1-2 PM Eastern Time

641-715-3300, access code 485743#

The [Periodic Table of Elements](#) revolutionized nineteenth century chemistry because it allowed scientists to organize chemical elements by their chemical structure, and make predictions about future discoveries. The table is being used today in fields beyond chemistry by designers, artists, and creative thinkers. [Cameron Norman](#) is a designer, a scientist, an educator and a health promotion professional who is passionately committed to using [design and systems thinking](#) to make sense of and address complex social problems. He is principal of a health-focused design studio called CENSE Research + Design where he focuses on the study and practice of ways to shape the actions and conditions that promote and sustain good health and wellbeing for ourselves and our communities. CENSE Research + Design, is a social innovation consultancy group and design studio that helps organizations apply systems thinking in their work and use social media to engage the public. He is also an assistant professor in the Dalla Lana School of Public Health at the University of Toronto where he has taught courses in health behavior change, program evaluation and systems science perspectives on public health. [Andrea Yip](#), social media coordinator at the [Dalla Lana School of Public Health](#) is a health promoter and scientist at heart. Her interests in public health research and practice focus on youth peer education, design thinking, participatory action research, and youth engagement. She is particularly intrigued by the ways in which social, mobile and visual media have transformed the way we interact, connect, share knowledge, and shape our own conceptions of health and well being. Her blog is [here](#). The Periodic Table of Design Thinking is [here](#). Graphic designer [James Harris](#), also known as ComputerSherpa, created the [Periodic Table of Storytelling](#). After growing up in Russia and spending four years fixing computers for the US Air Force, Harris is



now studying for a Bachelor's Degree in Communications Design in Denver.

Complexity and Spirituality

Guests: [Kevin Buck](#) and [Lama Surya Das](#)
Friday, March 9, 2012

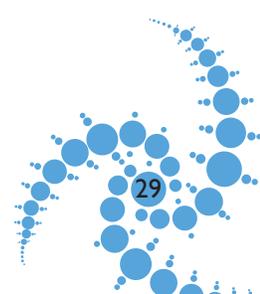
1-2 PM Eastern Time

641-715-3300, access code 485743#

Complexity science, with its focus on emergence, self-organization, interdependencies and paradox is an intriguing lens for an exploration of spirituality. Join our guests as they explore the challenges of both/and thinking, mystery and the responsibilities of independence and connectedness. [Kevin Buck](#) is a collaborative leadership consultant and executive coach with more than 25 years experience working organizations and industries. He is the principal of the consulting firm [Emergent Success Inc.](#) He was formerly the director of the Center for Ministry Leadership at St. Joseph Health System and has developed and taught coaching programs for Pepperdine University's Graduate School of Psychology Professional Development Program. He also taught at Graziadio School of Business and Manage-

ment. Buck is a licensed marriage and family therapist, and had a private practice in California for 14 years. He is trained in classical literature, theology, philosophy, psychology and complexity science. [Lama Surya Das](#) is a well known Western Buddhist meditation teacher and scholar who has studied Zen, Vipassana, Yoga and Tibetan Buddhism. He is an authorized lama in the Tibetan Buddhist order, as well as being a translator, poet, mediation master, and chant master. He is the author of an [Awakening trilogy](#): *Awakening the Buddha Within*, *Awakening to the Sacred* and *Awakening the Buddhist Heart*.

Completed PlexusCalls are available as audio files at www.plexusinstitute.org



emerging: **book review**

“1493: Uncovering the New World Columbus Created”

By Charles C. Mann

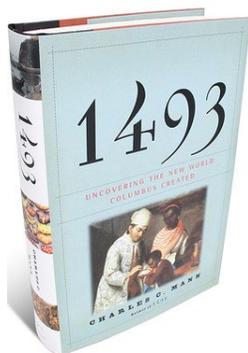
Reviewed by Prucia Buscell

Catarina de San Juan, an obscure visionary living in the mountains of Mexico, was an unlikely candidate for sainthood. Named Mirra at her birth in 1605, she was daughter to an aristocratic Muslim family living in what is now modern Pakistan. Akbar, the emperor at the time, tolerated Christianity, and allowed Jesuits in his court, where some courtiers converted. But when Portuguese pirates seized a ship full of Muslim pilgrims on their way to Mecca, Akbar interpreted it as a religious insult and began persecuting Christians. Mirra and her family, who may have had Christian sympathies, fled to Surat, on the Arabian Sea, where Mirra was abducted by Portuguese pirates, taken to India, and then to Manila. Eventually she was acquired by a ship captain from Pueblo who brought her home to Mexico, where she refused to marry and became a fervent religious ascetic.

Alonso Ramos, a Jesuit priest, chronicled her confessions and visions from the late 1600s in the longest literary works published at that time in the New World. When she died in 1688, mourners at her funeral would hear that she had traveled the planet spiritually, directing a Christian victory over Muslim armadas in the Mediterranean and helping the Virgin Mary save a Spanish treasure fleet from a demonic hurricane.

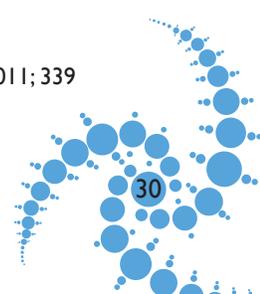
Charles C. Mann tells Catarina’s tumultuous story in *1493: Uncovering the New World Columbus Created*. It’s just a piece of the extraordinary Asian migrations that preceded and followed her. Sailors, servants, merchants and slaves from India, Malaysia, Burma and Sri Lanka arrived in the Americas by way of the galleon trade and Portuguese slavers. When Japan closed its borders to foreigners in 1630, Japanese expatriates were stranded wherever they were, and hundreds ended up in Mexico. The city of Puebla had a tightly knit Asian community by the seventeenth century.

Mexico City, Mann writes, was the world’s first truly modern, globalized megalopolis, “a place where east met west under an African and Indian gaze.” He describes a vigorous urban hub where loosely defined ethnic groups from Africa, Asia, Europe and the Americas scuffled in the streets, struggled to pull strings in government, and cooperated warily in the military. Mexico City had the first real Chinatown, Mann writes, where Chinese barbers practiced sophisticated Chinese medicine and dentistry for wealthy customers and skilled craftsmen made treasures of local materials. The city was also beset by environmental problems—the siege by Hernan Cortes had wrecked the intricate network of dikes and baffles



1493: Uncovering the New World Columbus Created, by Charles C. Mann; The Guilford Press, 2011; 339 pages.

[Find it on Amazon.com.](#)



that kept the city from being flooded every spring. Civic life was torn by strife between a tiny elite of wealthy Spaniards who held central control and the “teeming fractious polyglot at the periphery”, and battered by a corrupt and inept civil and religious establishment. It was, Mann says, amazingly contemporary, and unlike anything else on the planet, then or before.

Events from four centuries ago set the template for the events we are living today, Mann suggests, from immigration to trade policies to culture wars. Columbus’s voyage represented an unprecedented reshuffling of human populations, in which Europeans became the majority in Argentina and Australia, Africans were found from Sao Paulo to Seattle, and Chinatowns sprung up all over the globe. It was the human arm of what researchers call the Columbian Exchange, in which thousands of animal and plant species and new ideas and practices were carried across oceans to new homes, changing lives and landscapes on virtually every part of the planet. The Columbian Exchange is why there are tomatoes in Italy, oranges in the U.S., why China produces more white potatoes, plants native to the Andes, than any other country, and why the rubber tree, a native of Brazil, grows in Southeast Asia. The exchange produced an accidental and unexpected series of social and ecological convulsions, triggered by the desire of Europeans to establish trade with China, fueled by miscalculations and ignorance about geography, politics, religion and the existence of indigenous populations.

Mann provides a densely documented account of human events along with discoveries of biologists, archeologists, a wide range of scholarly researchers and observations from his own extensive travels. He explores human history and foible, as well as the things human travelers carried and dispersed deliberately—the silver, rum, tobacco, spices, sugar and slaves—and inadvertently—the seeds, weeds, microbes, and illnesses.

Mann traces the tortured history of human slavery, and adds insights from new research. He notes scholarly records show between 1500 and 1840, some 11.7 million captive Africans came to the Americas, compared with about 3.4 million European immigrants. Before the late nineteenth century, he writes, America was an extension of Africa rather than Europe, and Africans were the majority population in every place that wasn’t dominated by native American Indians. Europeans would become

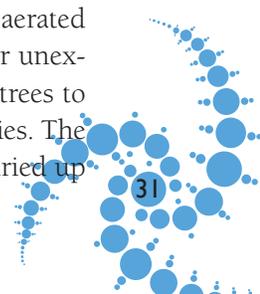
the majority in America after new waves of nineteenth century immigration.

Plantations that grew cotton, tobacco, rice and sugar cane needed plentiful labor. But why did owners choose people who didn’t speak the language, whose presence was involuntary and who cost more to transport than Irish and Scottish indentured servants? Ironically, Mann writes, the genetic superiority of Africans made them vulnerable to enslavement. Researchers have found that in the 1700s, most people in West and Central Africa had hereditary immunity to vivax malaria, the kind that flourished in Virginia and the Carolinas as mosquito populations bred and burgeoned in rice paddies and hospitable climates. The slaves died of illnesses and brutality, but they didn’t die as fast as Europeans. In some parishes in early eighteenth century Virginia, three of every four European children died of malaria.

Plantation owners wouldn’t have understood the epidemiology, Mann notes, but those who had slaves who survived and had children were more successful than planters who had indentured servants, and the successful planters bought more slaves. Paradoxically, Mann says, the wide open spaces of America seem to have been another inducement to slavery. If employers risked losing workers who had the chance to acquire cheap land, they had greater motive to control their workers’ freedom of movement.

Many other surprises accompanied the Columbian Exchange. Consider the lowly earthworm. Before the arrival of European ships, no earthworms lived in the soils of New England and the Midwest. Leaves and seeds piled in drifts on forest floors, and trees, shrubs, and many insects and birds depended on litter for food. Once these tiny ecological engineers arrived and began tunneling in the soil, many old species died off and the newly aerated soil allowed for new crops like maize. In another unexpected consequence, the importation of rubber trees to Asia killed off orchids that had thrived for centuries. The thirst of the rubber trees, native to rain forests, dried up

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the Asian soil and morning fogs that had nurtured the orchids.

If you're ever frustrated with your job, consider the plight of the men who mined guana in the Chincha Islands, about 13 miles off the south Atlantic coast of Peru. Mann describes these islands graphically: dry, uninhabited, and lacking any plant growth. But over millennia, birds—the Peruvian booby, the pelican and the cormorant—had produced a layer of guana, or bird feces, 150 feet thick. When agricultural scientists discovered in the 1840s that guana made excellent fertilizer, a booming export business began. Guana miners worked, ate and slept on high ledges in mountains of ancient excrement. Crystals of ammonia broke in corrosive clouds as they shoveled the stuff into carts they had to push up the side of mountains to be expelled through long tubes into ships in the harbor below. As the guana dust exploded in the hatchways, the ships were shrouded in toxic fog. The work was so awful slave holders didn't want to risk losing their slaves. So they sent their agents to China, to sign up illiterate villagers who believed falsely they were being recruited to work in California's gold fields.

If you doubt there is more to learn about Christopher Columbus and the consequences of that historic voyage, read this absorbing book. In an arresting tidbit from

his own travels, Mann tells how Chinese-Mexican potters had long ago used local clay to create replicas of the blue and white porcelain of the Ming Dynasty. A modern day Puebla merchant complained to him that skilled potters in China are now inundating local markets with counterfeit porcelain—a Chinese imitation of a Chinese-made Mexican imitation of a Chinese original.

1493 is a sequel to his book *1491: New Revelations of the Americas Before Columbus*, which explores how native peoples in North and South America and the Caribbean interacted with the natural world. ■

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