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RADICAL AESTHETICS AND CHANGE

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Cultivating an Aesthetic of Unfolding: Jazz Improvisation as a Self-organizing System

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In the last two decades the natural sciences have been experiencing a fascinating revolution. The consequences of this revolution are still reverberating, but already we can see that it strikes at the very heart of the rational, empirical assumptions that have dominated 'normal' science since the Enlightenment. First introduced in physics and biology, this new science, known as complexity theory, claims that systems are so complex and interdependent that linear, reductionist thinking is inappropriate. Complexity theorists claim that dividing up and analyzing a system's parts cannot lead to prediction of their behavior or control over their activity. Linear thinking and reductionism fail to notice that systems have self-organizing principles that transcend the properties of their parts; that small changes can have large outcomes; and that knowledge about such systems is a matter of active co-participation rather than detached observation.

Although complexity theory cannot predict with any sense of empirical accuracy the consequences of small actions, it does claim to know something about the conditions of possibility that lead to creativity and system transformation. Perhaps what is most interesting, for present purposes, has been the discovery of those dynamic properties of systems that are highly creative and adaptive. Complexity theory proposes that systems are most creative when they operate with a combination of order and chaos. When systems are at the edge of chaos they are most able to abandon inappropriate or undesirable

behaviors and structures and discover new patterns that are more appropriate to changing circumstances.

With the migration of these scientific concepts into the social sciences, organizations are encouraged to value diversity, change and transformation rather than predictability, standardization and uniformity. Executives are encouraged to notice instability, disorder, novelty, emergence and self-organization for their innovative potential rather than as something to be avoided, eliminated or controlled. A new vocabulary that highlights fragmentation and marginality encourages a more positive attitude toward those elements that were once considered inconsistent with the goals of organized, goal-directed activity. These suggestions, whilst provocative, have often been prescriptive rather than descriptive, and we have few actual models of a human system living at the edge of chaos, making creative things happen.

The emergence of complexity theory within the social sciences coincides with the call to discuss the aesthetics of organizing (Strati, 1992, 1999). This new science suggests that analytic reasoning and rationality may be limited guides in helping us grasp the dynamic tension between chaos and order that complex systems exhibit; that a detached, rational, cognitive way of knowing cannot capture the dynamics of complex systems (Chia, 1998; Chia and King, 1998). Some go so far as to suggest that the search for certainty and predictability, ideals consistent with an Enlightenment view of knowledge, may actually prohibit the innovative potential of organizations. If rational ways of knowing are inadequate, are there any alternatives beyond a blind groping or random guessing? A core assumption of this chapter is that to understand social complexity requires cultivating an appreciative way of knowing, an aesthetic that values surrender and wonderment over certainty, affirmative sense making over problem solving, listening and attunement over individual isolation.

In order to explore a few of these ideas I will consider a concrete application of a self-organized, complex system. Specifically I will discuss jazz improvisation as a collective activity that exhibits many of the characteristics of a system that borders on the edge of chaos and order. After briefly exploring a few of the characteristics of complexity and improvisation, I will explore the unique appreciative way of knowing that makes improvisation possible, the paradox of learning to improvise, and the aesthetic practices and structures which allow jazz bands to self-organize.

Jazz improvisation as a complex system: minimal structures that guide autonomous contributions

I will begin by briefly exploring jazz improvisation as a prototype of an organization that values novelty and emergence. Jazz bands consist of diverse specialists living in turbulent environments, interpreting vague cues, processing large chunks of information, formulating and implementing strategy simultaneously, extemporaneously inventing responses without well-thought-out plans and without a guarantee of outcomes, discovering the future that their action creates as it unfolds. Jazz bands, in short, embody many of the

characteristics of post-industrial, post-bureaucratic organizing that complexity theorists extol. Jazz bands have minimal hierarchy, decision-making is dispersed, they are designed to maximize flexibility, responsiveness, innovation and fast processing of information. It is a form of social organization that produces order with little or no blueprint, organized from the bottom up: individuals have personal freedom to take initiative and operate on their own authority (their musical imaginations), guided by the constraints of the task, the conventions of practice and the enactments of other players.

Complexity theory suggests that human groups are capable of self-transformation when they enter a transitional phase that contain elements of stability and instability, when there is a minimal structure that keeps agents richly connected as they respond to one another in non-linear ways (Chia and King, 1998; Stacey, 1996). Jazz improvisation is an activity that cultivates these very elements. Information flows freely yet is restrained, members are diverse yet conform, members are richly connected, constraints are minimal and feedback is non-linear (i.e. there are many possible responses to a given stimulus and these responses can themselves stimulate unexpected behaviour). Such a system is a good candidate for the development of novelty: tiny changes can amplify and alter the state of the system, escalating into qualitatively different patterns (Stacey, 1996). Tension between these forces are continually rearranged, keeping the system in a state of fluctuation and dynamic instability.

What keeps jazz improvisation at this transitional edge without disintegrating into chaos is a minimal structure that limits and guides what the soloists can play. This framework that provides the necessary backdrop to coordinate action and organize choice of notes is the song. Songs are 'cognitively held rules for musical innovation' (Bastien and Hostagier, 1988: 585). Songs are made up of chords and corresponding scales that provide the conventions that guide note and harmonic choice. So, for example, a standard jazz song based on the popular standard song, 'Whispering', is made up of a series of chord changes in the standard key of E-flat. There are agreed-upon chords over each of the 24 bars. When the chorus ends, the song 'turns around' and repeats as the soloist 'plays over the changes'. This structure is minimal enough that it encourages considerable variation and autonomous expression, so that a musician playing this same song in a different performance will introduce considerable variation.

These ongoing chord structures are tacit rules that allow players to coordinate action whilst inviting autonomous expression, diversity and extemporaneous responsiveness to one another's gestures. The song acts as a temporal structure, a minimal set of rules (Eisenberg, 1990). Routinized patterns of chords provide enough background regularity that action can be coordinated, yet not overly constrained. It is significant that these minimal constraints are temporal structures of coordination – they are continuous throughout the life of the song. Players do not have to stop to negotiate their position and orientation as they proceed: everyone knows where they are supposed to be and assumes others will orient themselves accordingly. Chord changes signal shifts in contexts that provide the constraints and materials that invite transformations and embellishment. Given this orientation, there is an

enormous amount of latitude and individual autonomy permitted. It is the mutual recognition of shared rules that allows the players to coordinate activity.

Implications of an aesthetic way of knowing

In the previous section I discussed how jazz improvisation relies on minimally-shared agreements that encourage diverse and multiple contributions. While these structural conditions make the system a good candidate for self-organizing processes, there is another dimension of emergent systems that deserves exploration, namely how agents view knowledge creation. In this section I will discuss how jazz musicians approach their unusual task with an *aesthetic sensibility*, one that prepares them to be spontaneous and encourages them to be mutually responsive to what emerges.

It is appropriate that an exploration of aesthetic ways of knowing begins with Giambattista Vico. Born 16 years after the death of René Descartes, Vico challenged the dualistic assumptions of a rational, detached way of knowing that Descartes had helped to introduce. Vico argued that Cartesian ideas concerning the quest for certainty were constrained by a reduction of human capacity, a disembodied conception of mind. The mind and body, for Vico, were inseparable: awareness is not only abstract, but also something felt and imagined, what he called 'poetic wisdom'. To say that humans are capable of a poetic wisdom is to claim that humans are not passive recipients of sense impressions or mirrors reflecting the external world. Rather we are active, sensing, feeling and thinking participants in creating knowledge. Whereas rational knowing involves a detached approach to the world, eliminating any pre-judgements or feelings, poetic wisdom involves intuiting glimpses of immediacy and fluidity, experiences of awe, reverence and wonder, much like the ancient Greeks 'whose minds were not in the least abstract, refined or spiritualized, because they were entirely immersed in the senses, buffeted by the passions, buried in the body' (Vico, 1966: 118). What makes this kind of poetic wisdom possible is an absence of certainty and a fresh perception of the ordinary world: 'for ignorance, the mother of wonder, made everything wonderful to men' (Vico, 1966: 116).

The valuing of innocent wonder and ignorance is certainly at odds with the Enlightenment values of certainty, analytic reasoning and the reliance on predictable responses. But is it possible to re-create this innocent wonder, to suspend stock responses? By unpacking what happens when jazz musicians improvise, we can see that improvisation involves an aesthetic that attempts to be sensitive to the dynamics of emergence and surprise, building up knowledge and skills, only to surrender these stock responses in order to awaken fresh perception, novel action and the capacity to respond instantaneously to other human actors who themselves are attempting novel contributions. It is a world of intuitive, empathic connection rather than detached, planned and strategic intent. Following from Vico's notion of the pursuit of poetic wisdom, we might expect jazz musicians to talk about their activity not from a detached perspective but with a language of feeling, wonder and joy of discovery.

The nature of improvisation

To say that jazz music is improvised means that jazz music is spontaneous, unrehearsed and not written down beforehand. By definition, improvisation involves an openness to emergent possibilities. The word 'improvisation' originates from the Latin 'improvisus', meaning 'not seen ahead of time'. Improvising involves 'playing extemporaneously . . . composing on the spur of the moment' (Schuller, 1989: 378). Berliner defines it thus: 'Improvisation involves reworking precomposed material and designs in relation to unanticipated ideas conceived, shaped, and transformed under the special conditions of performance, thereby adding unique features to every creation' (Berliner, 1994: 241).

In a recent review article, improvisation was defined as the degree to which execution and composition converge in time (Moorman and Miner, 1998). This definition emphasizes the temporal order, the degree of simultaneity between composition and implementation, between the formulation of strategy and its implementation. In this sense improvisation is similar to Schön's notion of reflective practice. Schön defines it as 'on the spot surfacing, criticizing, restructuring, and testing of intuitive understanding of experienced phenomena' (1983: 147). Weick defines it as the simultaneous unfolding of thinking and doing (1996: 19).

Since the music is composed and performed simultaneously, and there is no guarantee of where one's queries will lead, there is an inherent risk in improvising. Saxophonist Paul Desmond described what he does when improvising: '(I) crawl out on a limb, set one line against another and try to match them, bring them closer together' (quoted in Gioia, 1988: 92). Or consider the way that jazz saxophonist Steve Lacy compares improvisation to exploring on the edge of the unknown:

There is a freshness, a certain quality, which can only be obtained by improvisation, something you cannot possibly get from writing. It is something to do with the 'edge'. Always being on the brink of the unknown and being prepared for the leap. And when you go out there you have all your years of preparation and all your sensibilities and your prepared means but it is a leap into the unknown. (Quoted in Bailey, 1992: 57)

Unlike classical musicians who rely on pre-scripted music, jazz players face an unpredictable future, fraught with instability and anxiety as they 'leap into the unknown'. Jazz critic Ted Gioia describes the challenge of improvisation by comparing it to the creative processes of other art forms:

Imagine T.S. Eliot giving nightly poetry readings at which, rather than reciting set pieces, he was expected to create impromptu poems - different ones each night, sometimes recited at a fast clip; imagine giving Hitchcock or Fellini a handheld motion picture camera and asking them to film something, anything - at that very moment, without the benefits of script, crew, editing, or scoring . . . (Gioia, 1988: 52)

When improvising, one journeys into the unknown and is expected to create coherent musical ideas that are novel and unpredictable. Jazz musicians find themselves perilously 'out on a limb', at the edge of their comfort level, seeking to create coherent, original statements out of disparate, evolving musical material, often in the presence of an audience. Introducing such instability increases anxiety, the fear of failure and a temptation to play what is comfortable and has proven successful in the past. For this reason, there is often a temptation to rely on well-learned stock phrases. Musicians who repeat their solos or who play flawless patterns are not regarded highly by the jazz community. Musicians often make it a priority to guard against over-relying on successful routines. As Keith Jarrett speaks of this challenge: 'You're never in a secure position. You're never at a point where you have it all sewn up. You have to choose to be secure like a stone, or insecure but able to flow' (in Palmer, 1974). In the next section I would like to explore how musicians cultivate the unique mindset that welcomes what some might regard as perilous and risky activity.

Cultivating an aesthetic of surrender: embracing risk and letting go of the familiar

How is it possible that great jazz musicians are able to create such novelty? How can we account for master players like Charlie Parker 'Bird', for example, who was able to improvise fast tempos, weaving diverse themes together, suddenly quoting a phrase from an unrelated tune that seemed to 'pop' into his mind? There is a romantic notion that jazz musicians are natural geniuses or that they are simply picking notes out of thin air. In fact, jazz musicians prepare to be spontaneous in the way that they practise: they attempt to get beyond the necessary stage of rote learning to create conditions that challenge the boundaries of their capacity.

Jazz musicians practise their art form in a unique way. Like all expert skills, there is a stage of rote learning and practise necessary. They learn to be creative by first imitating others. Students of jazz learn the motifs and phrases of previous masters, practise them repeatedly until they become somewhat automatic. They study the masters' solos, learn the overall strategy and choice of notes, how they harmonized certain phrases and matched phrases to chord changes. These phrases, or what they call 'licks', become part of the players personal repertoire. According to trumpeter Benny Bailey, 'You just have to keep on doing it [practising phrases] over and over until it comes automatically' (Berliner, 1994: 165).

After mastering others' phrases and styles, musicians begin to combine them with previously unrelated material, introducing incremental alterations. They add grace notes, dissonant passing notes, repeat and extend parts of a familiar pattern, substitute a similar phrase over a down-beat rather than an up beat, alter the harmonic extensions of the basic chord progression. Miles Davis captured this paradox: 'Sometimes you have to play a long time in order to play like yourself' (1986). These incremental alterations and unique combination of the

disparate materials begin to point to the development of one's unique style. At some point, the player begins to add, re-combine, vary the patterns that have become automatic by sheer repetition. Players export, borrow material from different contexts, combine unrelated modes, apply familiar phrases to seemingly unrelated chord changes.

Once players have mastered a repertoire of 'licks', they engage in practices that guard against over-reliance on these same skills. Musicians *cultivate surrender* by:

- 1 exploring and monitoring the edge of competence;
- 2 developing provocative learning relationships that simultaneously support and challenge;
- 3 creating incremental disruptions that demand opening up to unexplored paths.

I will briefly explore each of these below.

Exploring the edges of competence

Players must resist the temptation to play what is within their comfortable reach. They often develop a self-reflexive capacity, challenging themselves to explore the very edge of their comfort level, to stretch their learning into new and different areas. Jazz musicians often take steps to guard against over-relying on playing 'certain stock phrases which have proven themselves effective in past performance (rather than) push themselves to create fresh improvisations' (Gioia, 1988: 53). Pianist Bill Evans continually practised musical passages he did not quite understand and, once mastered, took on other difficult passages (Evans, 1991). Saxophonist John Coltrane learned songs in the most difficult, rarely played keys.

Musicians monitor the edges of their competence and deliberately explore the limits of their capacity. They throw themselves into actual playing situations 'over their heads', stretching themselves to play in challenging contexts. Musicians must also do other things to 'trick' their automatic responses so that they do not continue to play well-worn phrases that are predictable and comfortable. Saxophonist Ken Peplowski describes how musicians welcome surprise and willingly abdicate control. He says that

we have to risk sounding stupid in order to learn something . . . We are always deliberately painting ourselves in corners just in order to get out of them. Sometimes you consciously pick a bad note and try to find a way to get out of it. The essence of jazz is to try to put three to eight people together while they're *all* trying to do this at the same time. (Peplowski, 1998: 560)

Developing provocative learning relationships

Jazz musicians develop provocative learning relationships that simultaneously support and challenge learned habits by stretching them to take risks. One

classic learning situation is the 'jam session'. Here musicians often throw themselves in over their heads, improvising with other more competent players. The young Miles Davis discovered from earlier masters that learning to improvise jazz is a treacherous, if exhilarating, adventure. He recalled the terror he felt when he replaced Dizzie Gillespie in Charlie Parker's band in the 1940s. Parker would deliberately play difficult tunes at very fast tempos, beyond Davis's facility with the instrument:

Sometimes I just couldn't play what Dizzy played. He played so fast I just wanted to quit every night. He would leave the stand and leave me up there. I thought 'shit'... so I finally learned how to play that fast and feel comfortable. (Davis in Berliner, 1994)

Feelings of terror aside, most jazz musicians would agree with Davis's conclusion that such 'stretches' are necessary for a musician's growth. Many veterans tell stories of suffering through anxious situations that in retrospect motivated them to new discoveries. Part of cultivating an aesthetic of surrender is appreciating that such difficult moments might lead to wonderful discoveries.

In addition to self-challenge, musicians often cultivate learning relationships in which they stretch and support one another to achieve new discoveries, going after what is not quite at hand. These are often described with a certain admiration and fondness. Local communities of practice developed in the early 1950s around metropolitan areas such as Detroit, Chicago and especially New York: players would 'hang out' and learn from each other. Trombonist Kurtis Fuller recalls how peers challenged and sustained one another through collaborative discoveries, attempting difficult technical passages or importing other kinds of music:

I stayed at 101st street, and Coltrane was at 103rd street and every day I could just take my horn and walk around there - stay over there all day. We'd have tea and we'd sit and talk, and we'd laugh and put on records. Coltrane would say, 'Hey Curtis, try to play this on the trombone'. And I would try to run something down. I'd struggle with it and he'd say, 'You're getting it' and so on and so on. Paul Chambers lived all the way in Brooklyn, and he would get in the subway and, gig or no gig, he would come over to practise. He got this thing - a Polonaise in D minor - and he'd say 'Hey Curtis, let's play this one'. It wasn't written as a duet, but we would run that down together for three or four hours. A couple of days later, we'd come back and play it again. The whole thing was just so beautiful. (Berliner, 1994: 39)

A special fraternity often develops among jazz musicians as they guide each other through obstacles and challenges that lead to new learning experiences.

Jazz musicians talk about provocative learning relationships that model surrendering to possibility rather than defending enactments. Trumpeter Wynton Marsalis grew up under the tutelage of a master pianist who happened to be his father, Ellis Marsalis. On one of Wynton's recordings, he asked his father to play piano. In jazz vernacular, this role is often referred to as 'sideman' - a term that emphasizes the accompanying or supporting role. According to Wynton:

My father's so much hipper than me and knows so much more, but I can tell him, 'I don't like what you played on that', and he'll just stop and say, 'Well, damn, what do you want?' Then I'll say, 'Why don't you do this?' and he'll try it. That's my father, man, . . . If I said I didn't like it, he'd change it and at least look for something else, because he's a sensitive musician. The more I get away from him, man the more I know how much I learned from him just by looking and watching. I grew up with one of the greatest examples. (Berliner, 1994: 41)

This exchange is an interesting microcosm of a provocative learning relationship that nurtures an aesthetic of openness and surprise. In this situation, Wynton apparently has musical insight that he thinks is harmonically more appropriate than the chords the pianist (the father) was playing. Upon hearing the band leader's (Wynton's) suggestions, the sideman (Ellis) does not defend the correctness of his musical ideas, or generate rationales to explain his choice, but immediately respects the son's suggestions. There is an irony in this exchange. Who is the learner here? Ellis appears to be the one learning to try different musical ideas, but upon further inspection, there appears to be another kind of learning happening as well: he is teaching the son something about non-defensive, open approach to inquiry. Wynton seems to walk away with a lasting insight, admiring his father's approach to and immersion in music, an openness to learning and commitment to creative invention. What he taught him apparently is to avoid becoming too attached to what is comfortable and secure, to be open to exploring new pathways, to avoid defensive routines. The young Wynton was learning that even established, competent musicians must be willing to abandon comfortable practices and to abdicate postures of established status that block the emergence of good ideas.

Creating incremental disruptions that demand openness to what unfolds

Miles Davis found a provocative way to disrupt secure habitual ways of responding in hope of awakening fresh responses and exploring the edge of his capacity. In a famous 1959 recording session, the musicians arrived in the studio and were presented with sketches of songs – some only partially complete – written in unconventional modal forms. One song, 'Blue in Green', contained 10 bars instead of the more familiar 8- or 12-bar form that characterized American popular music. Never having seen this music before, and unfamiliar with these odd forms, the musicians had no rehearsal. The album that resulted – *Kind of Blue* – consists entirely of 'first takes' so that what we hear when listening to this music is these musicians discovering the new music at the very moment they are inventing it. Miles Davis nurtured an aesthetic of surprise: he introduced incremental disruption that handicapped routines and made it impossible for the players to rely on rote learning and habitual responses (see Barrett, 1998). This is how pianist Bill Evans describes this famous session in the original sleeve notes:

There is a Japanese visual art in which the artist is forced to be spontaneous. He must paint on a thin stretched parchment with a special brush and black water

paint in such a way that an unnatural or interrupted stroke will destroy the line or break through the parchment. Erasures or changes are impossible. These artists must practise a particular discipline, that of allowing the idea to express itself in communication with their hands in such a direct way that deliberation cannot interfere. The resulting pictures lack the complex composition and textures of ordinary painting, but it is said that those who see will find something captured that escapes explanation. This conviction that direct deed is the most meaningful reflection, I believe, has prompted the evolution of the extremely severe and unique disciplines of the jazz or improvising musician.

This passage poetically articulates the aesthetic of surrender, the deliberate attempt to suspend deliberation, embracing the 'direct deed' in the hopes of catching the glimpse of fleeting, transient relations. By taking familiar structures away, musicians are hoping to notice the mobile, flowing configurations, the fragments and dispersed collages that are seeds for potential exploration and development.

In sum, musicians employ deliberate, conscious attention in their practise, but at the moment when they are called upon to play this conscious striving becomes an obstacle. Too much regulation and control restricts the emergence of fresh ideas. Musicians must *surrender* their conscious striving. They prepare to be spontaneous by practising, mastering and then letting go; by deliberately facing unfamiliar challenges, by developing provocative learning relationships and by creating incremental disruptions that demand experimentation and risk. As saxophonist Ken Peplowski said: "You carry along all the scales and all the chords you learned, and then you take an intuitive leap into the music. Once you take that leap you forget all about those tools. (Peplowski, 1998: 561).

Cultivating an aesthetic of surrender involves a special preparation: exploring the edge of competence, developing relationships that challenge learning, creating incremental disruptions that demand opening up to the unexpected. Each of these practices attempts to dislodge linear, predictable responses. Cultivating an aesthetic of surrender invites openness and wonderment to what unfolds, enhancing the self-organizing potential of the system by preparing players to respond in unpredictable, novel ways. When each of the musicians adopts an aesthetic of surrender to what unfolds, there is an increased likelihood that small actions amplify into large consequences, qualitatively different patterns emerge and complex systems achieve creative breakthroughs.

An aesthetic of appreciation: the art of affirmative engagement

Since players must compose responses on the spot, there seems to be limited foresight and control at one's disposal. That such a precarious situation does not lead to anarchy speaks to the subtle and tacit aesthetic that is sensitive to the dynamics of unfolding while envisioning future paths. The aesthetic that gives coherence to the music is an affirmative sense-making. Simply put, improvisation requires a mindset of appreciation. Since jazz players cannot prescribe where the music is going to lead beforehand, they are left to making

sense of what has already happened and making guesses and approximations that project what is likely to happen next:

The improviser may be unable to look ahead at what he is going to play, but he can look behind at what he has just played; thus each new musical phrase can be shaped with relation to what has gone before. He creates his form retrospectively. (Gioia, 1988: 61)

The musician looks back on what is emerging – the various chord progressions, melodic fragments, rhythmic patterns – and jumps into the morass. An appreciative sense-making involves attending closely to what is happening, seeing the potential for embellishing on motifs, linking familiar with new utterances, adjusting to unanticipated musical cues that reframe previous material. In a continual dialogical exchange, each of these interpretations has implications for where one can proceed, as this excerpt illustrates:

After you initiate the solo, one phrase determines what the next is going to be. From the first note that you hear, you are responding to what you've just played: you just said this on your instrument, and now that's a constant. What follows from that? And then the next phrase is a constant. What follows from that? And so on and so forth. And finally, let's wrap it up so that everybody understands that that's what you're doing. It's like language: you're talking, you're speaking, you're responding to yourself. When I play, it's like having a conversation with myself. (Max Roach cited in Berliner, 1994: 192)

Improvisation involves continually attending to cues, retaining some part of the past, variation on other parts so that one can look back on what has happened and extend it.

Weick (1993) compares the jazz improviser to Lévi-Strauss's concept of *bricolage*, the art of making use of whatever material is at hand (see also Linstead and Grafton Small, 1990). *Bricoleurs*, like jazz musicians, are pragmatists: they learn by continual experimentation, by playing with possibilities, by tinkering with systems while noticing emerging patterns and configurations. He cites the example of a junk collector in upper-state New York who built a tractor from a huge collection of unrelated junk and diverse parts he had accumulated in his front yard. The jazz musician, like the junk collector, looks over the material that is available at that moment, the various chord progressions and rhythmic patterns, and leaps into the morass assuming that whatever he is about to play will fit in somewhere. Like the *bricoleur* who assumes that there must be a tractor somewhere in that pile of junk, the improviser assumes that there is a melody to be worked out from the quandary of rhythms and chord changes. Sense-making occurs appreciatively and retrospectively: as new phrases or chord changes are introduced, the improviser makes connections between the old and new material and adds to the unfolding scheme with the assumption that what is happening will appear purposeful, coherent and inevitable.

Appreciating the affirmative potential in every musical utterance becomes a self-fulfilling prophecy for improvising musicians, especially when dealing with errors. Jazz improvisation is marked by a restless adventurousness, an

eagerness to travel into unexplored territory. There are hazards, risks, gambles, chances, speculation, doubts. Jazz is an expressive art form that encourages players to explore the edge of the unknown, and if improvisation legitimizes risk taking, it is inevitable that there will be discrepancies, miscues and 'mistakes'. Jazz musicians often turn these unexpected moments into something sensible, or perhaps even innovative. Errors are often integrated into the musical landscape, an occasion for further exploration that might just lead to new pathways that otherwise might not have been possible. Herbie Hancock recalls that Miles Davis heard him play a wrong chord, but simply played his solo around the 'wrong' notes so that they sounded correct, intentional and sensible in retrospect. Jazz musicians assume that 'you can take any bad situation and make it into a good situation. It's what you do with the notes that counts' (Barrett and Peplowski, 1998: 559).

Rather than treat an unintended enactment as a mistake to be avoided, often jazz musicians treat these gestures as another theme. They do not stop to analyze the error, problem solve and set up controls to prevent its recurrence. Rather, they repeat it, amplify it and develop it further until it becomes a new pattern. When pianist Don Friedman listened to a recording he made with trumpeter Brooker Little, he realized that he had played the wrong chord. Little, however, brilliantly shaped his solo around the alleged 'wrong notes':

Little apparently realized the discrepancy during his solo's initial chorus, when he arrived at this segment and selected the minor third of the chord for one of the opening pitches of a phrase. Hearing it clash with the pianist's part, Little improvised a rapid save by leaping to another pitch and resting, stopping the progress of his performance. To disguise the error further, he repeated the entire phrase fragment as if he had initially intended it as a motive [*sic*], before extending it into a graceful, ascending melodic arch. From that point on, Little guided his solo according to a revised map of the ballad. 'Even when Brooker played the melody at the end of the take', observed Friedman with admiration, he varied it in ways 'that fit the chord I was playing'. (Berliner, 1994: 383)

Little does not seek to fix blame or search for causes of the mistake but simply accommodates it as material to be queried for possible direction. Such a move is affirmative as well as forgiving: his utterances contain fragments of Friedman's, making the 'error' sound intentional in retrospect. Such reflection grants validity to the other's offering and leads to transformation, re-direction and unprecedented turns. Jazz improvisation assumes that there is affirmative potential waiting to be discovered from virtually any utterance (Barrett, 1995). Within the morass of dynamic instability that characterizes improvised settings, an appreciative mindset provides a guiding, retrospective focus that enhances the self-organizing potential of the entire system.

An aesthetic of attunement: hitting the groove

Perhaps the most striking characteristic of jazz improvisation and the source of its novelty and unpredictability is that it is an ongoing collaborative art form.

Jazz improvisation involves ongoing social negotiation between players. In order for jazz to work, players must be actively listening and responding to one another, attuned to the unfolding world that they are simultaneously creating and discovering. From the moment a performance begins, the improviser enters an ongoing stream of musical activity that is constantly changing and evolving: drum accents, harmonic alterations, segmented bass lines, fragmentary melodies intermingling through temporal structure of the song. Players enter this undulating flow, constantly interpreting the musical material before them, merging their own ideas with others', attempting to create a coherent statement. They are constantly anticipating one another's intentions, making guesses and predictions. Players are committed to stay engaged with one another, to listen to emerging ideas and to pay attention to cues that can point to an unexpected trajectory.

Jazz improvisation is often likened to a conversation between players: like a good dialogical exchange, participants strive for attunement by listening, anticipating and responding. They are engaged with continual streams of activity: interpreting others' playing, anticipating based on harmonic patterns and rhythmic conventions, while simultaneously attempting to shape their own creations and relate them to what they have heard. In some sense, attunement is built into jazz performance by the practice of turn taking. Through iterative patterns of exchange, each person takes a turn developing a musical idea. While one person is developing an idea, others take on a support role by accompanying, or 'comping'. The task of those 'comping' is to focus on helping the other develop his or her emerging idea, to empathize with the soloist and to anticipate the direction of the phrases so as to blend, encourage and augment.

Cultivating an aesthetic of attunement suggests that when members are richly connected they are able to respond to one another's utterances. Such a context may provide a 'holding environment' a safe context allowing one another to explore, develop, grow. Musicians often refer to this as a 'groove'. When they strike a groove, the players successfully negotiate a shared sense of the beat and the music seems to take on a life of its own. Players talk about these moments in sacred terms, as if they are experiencing something out of ordinary time:

When the rhythm section is floating, I'll float too, and I'll get a wonderful feeling in my stomach. If this rhythm section is really swinging, it's such a great feeling, you just want to laugh. (Emily Remeler in Berliner, 1994: 389)

The attunement that they achieve pulls them to new heights, they speak of playing beyond their capacity. They speak in metaphors that relay a sense of ecstasy and joy: waves, surges, sailing, gliding.

The first time I got the feeling of what it was to strike a groove, it was very similar to how your body is left after an orgasm; you really lose control. I remember that I was playing and grooving and it felt so good, I just started grinning and giggling. (Jazz drummer in Berliner, 1994: 389)

When you're really listening to each other and you're performing together, it's like everyone is talking to each other through music. When groups like Dave Brubeck's or Miles Davis's or Art Blakey's play, they have good conversations, group conversations. When that's really happening in a band, the cohesiveness is unbelievable. Those are the special, cherished moments. When those special moments occur, to me, it's like ecstasy. It's like a beautiful thing. It's like when things blossom. When it's happening, it really makes it, man. (Curtis Fuller cited in Berliner, 1994: 389)

Relating fully to every sound that everyone is making not only keeps the improvising spirit going, but makes the experience complete. To hear it all simultaneously is one of the most divine experiences that you can have. (Lee Konitz cited in Berliner, 1994: 389)

The lucid apprehension of groove is not the understanding of the cognitive mind; rather the musicians feel and sense this connection in their bodies, an awareness that supports Vico's notion of poetic wisdom. The openness, receptivity and fluid coordination that occurs when musicians strike a groove point to a paradox that is implicit in the quotes above: good improvisers must be thinking creatively and avoiding over-learned habits, but when they strike a groove they are *not* consciously thinking, reflecting or deciding on what notes to play. They seem to aim for a surrender of control, a suspension of rational planning that allows them to open up to a deeper synergistic connection. Further, when this occurs, they seem to be able to play beyond their previously learned capacities.

Summary: toward an aesthetic of unfolding

This chapter follows Chia's (1998) contentions that a rational, cognitive orientation cannot capture the dynamics of complex systems, that propositional knowledge is reductionist and that 'intellect is incapable of establishing sympathy with the fluid living nature' (1998: 366). Jazz musicians are immersed in a fluid social world in which changing ensembles of relations are continuously transforming themselves. Conventional analytic methods of problem solving, as Chia implied, are not up to the task. Indeed groups who are improvising, producing without a blueprint or plan are hindered if they assume that their activity is clearly differentiated, isolatable, locatable within some pre-existing system of classification. Jazz improvisers cultivate an aesthetic that senses the dynamic unfolding of creative human action and appreciates the emergent, incomplete, mistake-ridden nature of human activity that often in retrospect leads to coherent, creative production. I am suggesting here that what is appropriate for grasping social complexity is an aesthetic of the dynamics of unfolding, an aesthetic that values surrender, appreciation, trust and attunement as seeds that sprout dynamic, novel social action.

When I say that complexity calls for an aesthetic way of knowing it may be useful to revisit the meaning of the word 'aesthetic'. It originates from the Greek 'athetisch', meaning 'pertaining to perception by the senses'. Perhaps the closest meaning that remains in our vocabulary is its opposite, 'anaesthesia',

which refers to the deadening of the physical senses, the inability to feel or perceive things (see Carter and Jackson, Chapter 8 in this volume). A doctor applies an anaesthetic when she wants the patient to feel nothing. If the opposite of aesthetic is numbness, an aesthetic awareness is one that is *open to the immediacy of wonderment*. When pianist Bill Evans describes eliminating prior deliberation in the creation of art, he is pointing to the suspension – the surrender if you will – of conventional problem solving and routine ways of knowing so as to be open to what emerges in the moment. These habits of deliberation need to be abandoned because sheer repetition and reliance on pre-existing categories creates a disembodied experience – an anaesthesia. When Wynton Marsalis's father continues searching for ideas that blend rather than defending his enactments, he chooses a stance of attunement to what is unfolding. Holding on to routines and stock responses obstructs immersion in the immediacy. To be open to the aesthetics of unfolding is to be vulnerable in the face of the unknown – and indeed there is something quite touching about vulnerable human beings exploring the further reaches of their comfortable grasp, testing the limits of their understanding. The surrender of deliberation, the commitment to appreciate the potential of preceding enactments and to build on whatever emerges, the attunement to the inevitable surprises, might serve as catalysts for recapturing the innocent ignorance and poetic wisdom that Vico envisioned.

Jazz musicians cultivate an aesthetic of surrender. They learn to embrace risk and let go of the familiar. They engage in a rigorous method to prepare themselves for such precarious and potentially wonderful moments, to catch glimpses of fleeing transient configurations of relationships. They practise by building up their memory of repertoires that helps them recognize emergent patterns; these very skills, however, lend themselves to building stock responses which are the enemy of improvisation. To guard against habitual playing, they continually challenge themselves to stretch beyond comfortable limits; they deliberately create incremental disruptions and surprises that provoke fresh rather than stock responses. Most importantly, they are careful not to become too linked to comfortable habits that have worked in the past. At the moment of performance, they leap in and make the most of the resources they have at their disposal, continually synthesizing fleeing images into something coherent.

Noticing the potentials rather than the obstacles that one faces necessitates an affirmative aesthetic, the assumption that there is a latent, positive possibility to be noticed and appreciated (Barrett, 1995). In order for jazz to work, the improviser must assume that whatever has happened will make sense, that prior note selections must be leading somewhere and that there must be some order in the disparate material waiting to be enticed and queried. Rather than engaging in fault finding or holding one another responsible for inevitable errors that happen when one is experimenting on the edge of one's familiarity, each player is committed to sustaining the ongoing dialogue. To do this, musicians assume that there is an affirmative potential direction in every interaction and every utterance. They assume that everything that is happening – even the most blatant 'errors' – makes sense and can be a possible springboard for an inspired musical idea.

Finally, musicians cultivate an aesthetics of attunement, a willingness to respond to one another's enactments, a hope that others are responding in turn, and a common yearning for a shared sense of the rhythm and creation of a groove. When musicians are listening attentively, they have an enormous amount of influence over the direction of one another's playing. At any given moment, the music can go off into an unanticipated direction: a solo line might suggest unique sets of chord voicings that in turn might lead to expanding the harmonic extensions that a melody can explore. It is a recursive process in which every player has the potential to alter the fabric of the musical landscape, depending on what he or she hears and how they respond. When players are relating and responding well, the jazz band achieves a state of dynamic synchronization.

Jazz improvisation is a complex system that cultivates an aesthetics of unfolding, one that allows players to quickly notice and respond to unanticipated cues, abandon what doesn't work and create novelty that takes the system in a new direction. They grapple with the constrictions of patterns and structures, strive to listen to what is happening around them and respond coherently. At the same time they try to break out of these constrictions and patterned structures to create something new with the awareness that committing to either path entails a risk.

Conclusion

Considering organizations as complex systems is a metaphorical construction, just as imagining organizations as machines or organisms is a suggestive metaphor. The value of the metaphor of chaos and complexity is that it suggests a new language, a new way to talk about a familiar project. This chapter pushes us imaginatively one step further by imagining jazz as a concrete enactment of self-organizing processes.

Traditional approaches suggest that the purpose of organizing is to simplify complexity, to reduce chaos by creating order and control. One outcome of cultivating an aesthetic sensibility in relation to non-linear feedback systems is that organizing looks more complex, if not messier. We begin to see various tensions and paradoxes: the need to build up skills and competencies only to surrender these familiar responses at the moment of enactment; the need to jump in, take risks and focus on innovative contributions while amending these as we respond to the enactments of others. When we look closely at organizations as networks capable of continuous variety and novelty, we can appreciate that tiny utterances and fluxes can escalate into qualitatively different patterns. In one sense, appreciating the complexity of self-organized systems is an appreciation of the sheer boundlessness of human action. We are radically interdependent in a social world that is at once recalcitrant to our dreams of control and prediction while also responsive to the tiniest perturbations.

If Wheatley (1992) and others are correct, that the new logic for organizing in the twenty-first century requires an appreciation of chaos and complexity, then certainly the way we approach organizing needs to change. It would seem

that our cognitively embedded, familiar routines are fiercely parochial in the vastness of an unfolding complexity. For now, with the jazz metaphor playing in the background, one can only pose a question: what would our organizations look like if managers and executives were encouraged to recapture a poetic wisdom, to be suspicious of comfortable routines, to create provocative learning relationships, to see appreciation and affirmative engagement as a core task and to value wonder over suspicion, surrender over defensiveness and listening and attunement over self-promotion?

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