Journal of Management Studies 40:8 December 2003
0022-2380

Towards a Theory of Organizational Improvisation: Looking Beyond the Jazz Metaphor

Ken Kamoche, Miguel Pina e Cunha and João Vieira da Cunha

City University of Hong Kong; Universidade Nova de Lisboa; MIT Sloan School of Management

ABSTRACT This paper calls for research on organizational improvisation to go beyond the currently dominant jazz metaphor in theory development. We recognize the important contribution that jazz improvisation has made and will no doubt continue to make in understanding the nature and complexity of organizational improvisation. This article therefore presents some key lessons from the jazz metaphor and then proceeds to identify the possible dangers of building scientific inquiry upon a single metaphor. We then present three alternative models – Indian music, music therapy and role theory. We explore their nature and seek to identify ways in which the insights they generate complement those from jazz. This leads us to a better understanding of the challenges of building a theory of organizational improvisation.

INTRODUCTION

Organizational theorists have continued to demonstrate a healthy concern for creativity as they approach organizational problems. This is evident in the unrelenting search for new ideas and metaphors from the most varied fields imaginable. The scope includes military imagery (Ries and Trout, 1986), orchestras (Voyer and Faulkner, 1989), political arenas (Pfeffer, 1992), complex responsive systems (Stacey et al., 2000), chimeras (Sewell, 1998) and so forth. In the more practitioner-orientated publications, lessons for managers are drawn from Star Trek: Next Generation (Roberts and Ross, 1996), Attila the Hun (Roberts, 1991) and quantum physics (Peters, 1992). This creativity is in large part motivated by the quest for organizational success in a time marked by turbulent and increasingly complex environments (Bettis and Hitt, 1995).

Address for reprints: Ken Kamoche, City University of Hong Kong, Dept of Management, Tat Chee Avenue, Kowloon, Hong Kong (mgnkk@cityu.edu.hk).

Improvisation has emerged as one of the most fascinating concepts in recent years. Improvisation can broadly be defined as the conception of action as it unfolds, drawing on available cognitive, affective, social and material resources (see also Crossan and Sorrenti, 1997; Kamoche et al., 2002). This concept appears to have substantial implications for a number of organizational phenomena, ranging from teamwork and creativity to product innovation and organizational adaptation and renewal. Current work focuses mainly on the quest for theoretical sophistication (e.g. Barrett, 1998; Hatch, 1999; Kamoche and Cunha, 2001; Moorman and Miner, 1998a; Weick, 1998; Zack, 2000), with a small but growing number of empirical investigations into the incidence and nature of improvisation (e.g. Brown and Eisenhardt, 1997; Kamoche et al., 2003; Moorman and Miner, 1998b; Miner et al., 2001; Orlikowski, 1996).

It is interesting to note that the pioneers in this discourse drew largely from jazz improvisation to sketch a theory of this phenomenon in organizational settings (for a review see Cunha et al., 1999). This appears to have been motivated by the fact that jazz is the one social phenomenon in which improvisation is more salient (Weick, 1999) – certainly in western societies and in particular amongst musical forms. It is also apparent that a number of the pioneers are either amateur jazz performers or know jazz musicians from whom they have learnt about jazz and subsequently made the connection to organizational analysis. We note, however, that improvisation is not exclusive to jazz. In fact, according to acclaimed guitarist and musical producer Derek Bailey (1992) there is scarcely any musical technique or form that did not originate in improvisation and scarcely any single field in music which has remained unaffected by improvisation. He cites examples from a wide range of music, from flamenco, baroque, to African music, Turkish music and some variations of rock music.

In spite of the contribution of jazz to organizational improvisation, there is a potential danger of jazz becoming what Weick (1980) calls a 'blinding spot', by obfuscating contributions from other areas of human endeavour and, most importantly, from grounded and empirical research. It is important not to be mesmerized by the jazz metaphor to the point of ignoring the potential contribution of alternative metaphors and other avenues of theory-development in organizational improvisation. There appears to be a need, therefore, to broaden the scope for theory-building by developing new insights from other relevant phenomena which contain interesting elements of improvisation. Similarly, even while drawing from jazz, it is worth bearing in mind that there are many forms of jazz, with concomitant degrees of improvisation, each providing different sets of implications for organizational improvisation. We discuss this further below.

This article thus aims to contribute toward the emergent yet currently amorphous theory of organizational improvisation by delving into other phenomena which exhibit improvisational elements/action and contrasting them with the insights generated by the jazz improvisation metaphor. To accomplish this purpose,

we first present an integrative jazz-based model of organizational improvisation, and point out some dangers in relying on a single metaphor for theory development. We then contrast this model with three others which for our purposes are not necessarily meant to be 'alternative metaphors' but alternative ways of 'seeing' the dynamics of improvisation. In effect, these models serve as theoretical/analytical lenses which we believe can help us apprehend aspects of organizations which complement the insights generated by jazz. Finally, we bring together the contributions of the four models to demonstrate how they might lead to a more rigorous approach to theory-development in organizational improvisation. The definitive features of jazz and the three additional models are summarized in Table I.

A JAZZ-BASED THEORY OF ORGANIZATIONAL IMPROVISATION

In this section we discuss the characteristics of jazz improvisation that suggest its importance for the understanding of organizational improvisation. Music theorists have offered several broad categories of improvisation. Kernfeld (1995, pp. 131–58) discusses four: *paraphrase improvisation* (the 'recognizable ornamentation of an existing theme'); *formulaic improvisation* ('the artful weaving of formulas, through variation, into ever-changing, continuous lines'); *motivic improvisation* (where a motive forms the basis for a section of a piece); and *modal improvisation* (variation is achieved on the basis of pitch). Bailey (1992) makes a simple distinction between 'idiomatic' and 'non-idiomatic' improvisation. While the latter is mostly found in 'free' improvisation and does not represent any specific identity, the former is concerned with the expression of an idiom – e.g. jazz, flamenco, etc – and takes its identity and motivation from that particular idiom.

Others have identified 'degrees' of improvisation, e.g. a continuum that ranges from interpretation, minor deviation, embellishment, to full-fledged improvisation (e.g. Berliner, 1994; Moorman and Miner, 1998a; Weick, 1998). In a recent contribution, Zack (2000) has mapped these variations on four musical genres based on the extent of improvisation, from 'minimal to none' in classical, 'constrained within strong structure' in traditional jazz/swing, 'extensive' in bebop to 'maximal' in postbop. Zack (2000) argues that much of the current theorizing on organizational improvisation is based on the genre of jazz known as traditional jazz or swing, rather than 'free jazz'.[1]

According to Berliner (1994), improvisation involves reworking precomposed material in relation to unanticipated ideas that emerge and are conceived in the course of the performance. This observation has important implications for organizational improvisation because it implies the existence of a template upon which adaptation and deviation are realized. While such a template is most evident in swing jazz particularly in terms of rhythmic, melodic and harmonic structures, in bebop and postbop structure becomes progressing looser to the point that even

Table I. Antecedents, influencing factors and outcomes of improvisation

	Jazz	*Indian music*	*Music therapy*	*Role theory*
Antecedents				
Degree of deliberateness	High	High	High	Low (unintended deviation)
Social experience	Competition and Collaboration	Competition	Contact	Disclosure and meaning construction
Coordination	Organic solidarity	Mechanic solidarity	Explicit task rules	Social interaction
Minimal structure	Song (or riff, chords)	Musical formulas	Explicit social rules	Behavioural expectations and routines
Influencing factors				
Leadership style	Servant and rotating	Absent	Dual and directive	Balanced and dynamic
Individual characteristics	Virtuosity skills, trust, creativity	Virtuosity skills, competitiveness, creativity	No special skills required	Emphasis on role characteristics
Culture	Supportive	Adversarial	Supportive and nurturing	Supportive; continuity of membership
Memory	Declarative, procedural and situated	Procedural	None	Procedural
Group size	Small to medium	Small to medium	Medium or dyad	Dyad (may be within a network)
Outcomes				
Form of flexibility	Novelty	Novelty	Recovery	Adjustment
Nature of learning	Innovation	Innovation	Improving relationships	Local problem solving
Emotionality	Transcendence	Transcendence	Healing	Belonging
Further motivation	To compete and cooperate	To compete	To 'connect'	To continue

the basic harmonic structure is itself improvised (e.g. Zack, 2000). In assessing the robustness of the contribution of the jazz metaphor toward a theory of organizational improvisation, we find it helpful to characterize jazz improvisation under three headings: antecedents, influencing factors, and outcomes. We adopt this approach merely as an heuristic device to assist us achieve conceptual clarity in

our analysis, rather than to imply a deterministic linear logic in the creation of jazz music. Within these general headings, we articulate a number of constructs based mainly on a careful reading of the emergent literature on organizational improvisation. This categorization is not exhaustive, but we believe it captures most of the key definitive features of jazz improvisation. It can be argued, however, that where antecedents, influences and outcomes interact simultaneously, as in free jazz, a structuration perspective (Ranson et al., 1980) might be more appropriate.[2] A structuration perspective focuses on the interpenetration of framework and interaction, with structures continually recreated.

Antecedents

The antecedents of jazz improvisation can be divided into two groups: the motivation to improvise and the potential to do so. The will to improvise comes from: a deliberate choice of improvisation as an action strategy and a culture that encourages experimentation and treats mistakes as learning opportunities (Crossan et al., 1996; Weick, 1999). The potential to improvise comes from: a task structure that reflects knowledge of musical norms and jazz standards (i.e. conventions as well as songs), a social structure based on implicit norms and the use of a song to drive task performance (see also Bastien and Hostager, 1991; Hatch, 1997, 1999).

The social experience of jazz improvisation is defined by both collaboration and competition. Collaboration exists because of the collective nature of the performance, and the fact that members are bound by the task in hand. Intense interaction includes both *comping* (i.e. lending harmonic and rhythmic support) and the partnering, risk-taking and mutual commitment found in creative collaboration (Kamoche and Cunha, 2001). This cooperative aspect is considered to be one of the major traits of jazz improvisation (e.g. Bastien and Hostager, 1988; Hatch, 1999; Weick, 1999). Competition is found in 'cutting sessions' where musicians try to outdo each other, and engage in brinkmanship behaviour. Achieving a meaningful performance requires a balance between collaboration and competition. Thus, without seeking to romanticize jazz, we would argue that egotistical behaviour must be situated within a context of a collaborative praxis.

Drawing from Durkheim (1933), Sharron (1983) argues that jazz is a *time biased* form of group interaction grounded in organic solidarity. A jazz band is coordinated by organic solidarity, in the sense that it benefits from a highly complex division of labour with every member playing several roles in sequence. In a single performance, one plays leader and follower, melody and rhythm. Moreover, harmony, melody and rhythm are the responsibility of the entire group and not of any individual musician (Berliner, 1994). This is a kind of 'all for one and one for all [music] and no instrument or section can be said to play exclusively one of these components' (Sharron, 1983, p. 228). This complexity is 'manageable' because of the existence of what can be called a 'minimal structure' (see below).

The motivation to improvise is not enough; the potential to do so must also be present, which is assured by the presence of a minimal structure (Eisenberg, 1990). This minimal structure refers to a shared knowledge among members of a community of practice that allows for members to depart from canonical practice, especially when acting together (Brown and Duguid, 1991). In jazz, we can identify three components of a minimal structure: the social structure, the technical structure and the 'jazz standards' – the shared repertoire of songs (Bastien and Hostager, 1988, 1995; Kamoche and Cunha, 1999, 2001; Weick, 1999). In their summary of minimal structures, Kamoche and Cunha (2001) include the following:

- Social structures: behavioural norms; communicative codes; partnering in an autonomous ensemble; soloing/comping; high trust and zones of manoeuvre; risk-taking attitudes; supportive culture.
- Technical structures: definition of key, chord progression and repertoire; template of a song, chorus or riff; wide stock of talent; knowledge of music technology and instrumentation.

This categorization of structure serves two important purposes: it characterizes the constitutive elements of the performance while at the same time denoting how the minimal structure guides rather than constrains action. We draw from this characterization of 'structure' to offer a more refined view of the nature of structure in jazz. For example, it is common for observers to argue that structure gets less and less as we move from swing to bebop and postpop (e.g. Zack, 2000). However, the notion of a *minimal structure* serves to signal some 'basic' conditions that must be satisfied for a performance to be accomplished. Once these are in place, the musicians can take the performance in any particular direction. Similarly, a riff or a song can serve as a basic template or frame of reference, allowing the performers to chart the course of the emergent performance, with improvisation proceeding according to any of the genres characterized by Zack (2000). Bastien and Hostager (1988) offer the concept of a 'centring strategy' whereby musicians start off with a shared sense of jazz music theory, behavioural norms and communicative codes, and then selectively invent ideas along some of the potential paths suggested by this centre. In our view, this minimal structure is not genre-specific, though we recognize that in freer jazz, the zones of manoevre are much wider since other aspects of structure, like harmony and tone are also subject to improvisation.

These characteristics of jazz improvisation have important implications for organizations, especially in fast-changing environments (Eisenhardt and Sull, 2001). For instance, managers often take decisions with little indication as to possible outcomes, staking their reputation in extremely demanding and anxiety-inducing tasks (Peters, 1994). Secondly, the professional culture of jazz musicians, when considered a community of practice, seems appropriate to tackle this set of

challenges and seems somewhat more moderated than the 'all horizontal/no rules' organization that some prescribe (see Micklethwait and Wooldridge, 1996).

Influencing Factors

In this section we consider the factors that determine the sustainability and quality of the improvisational performance. For the purposes of capturing the dynamics and determinants of the improvisational action at the level of the team, we suggest they include but are not limited to leadership style, individual characteristics, culture, memory, and group size. Gioia (1988) argues that leadership factors can strongly influence the quality of a jazz band's performance. This form of leadership differs from that which we normally associate with organizations. For example, Greenleaf (1979) notes that a 'servant' leadership seems to be an important determinant of the quality and degree of an improvisation, helping to fight phenomena such as solipsism (Hatch, 1999). This in turn favours a rotating leadership style, in which each band member takes turns at deciding the direction and form of improvisation (Bastien and Hostager, 1991). Jazz is structured in such a way as to accommodate this form of soloing and 'comping'.

Individual characteristics include high levels of virtuosity skill, mutual trust and creativity. In addition to the requisite need for high degrees of performative competence (Crossan and Sorrenti, 1997; Kamoche and Cunha, 2001) jazz improvisers also need provocative competence: avoiding reliance on routines/past successes and exploring fresh alternatives thus testing the limits of their knowledge and comfort levels (Barrett, 1998). Trust should be seen alongside the need for a supportive culture in an activity defined by experimentation which requires some tolerance for mistakes, openness and faith in each other (Bastien and Hostager, 1991). Low creativity levels may limit the player's ability to imagine a rich set of variations, constraining his or her performance to a limited set of embellishments (Powers, 1981).

A final individual trait is the improviser's ability to deal with affective stress arising from dealing with the unknown. Musicians improvising in jazz and other genres, cited in Bailey (1992) and Gioia (1988) talk of the danger of 'crawling out on a limb', being on the 'edge', about facing a 'terrible moment', a 'dilemma', fearing to 'make a terrible fool' of themselves, and so forth. Others talk about the 'battle of getting up and playing,' and 'nervousness' (Peplowski, 1998). This clearly shows that improvising is a risky enterprise. Therefore, in order to deal effectively with these tensions it is necessary to have a culture that encourages experimentation and risk-taking. Within the organizational context, this poses a major challenge because managers tend to prefer familiar techniques, well-defined structures, and to avoid risk.

Memory, in various forms, plays an important role in improvisation. Situated, episodic memory generated from the 'structure of activity-in-setting' (Lave, 1988)

is particularly crucial because it is grounded in the social context within which the musicians learn their trade and is enriched by social interaction, allowing individuals to learn from each other and to call on the benefit of shared experiences. Learning is thus *situated* and *distributed* in the processes of coparticipation, rather than in the heads of individuals (Lave and Wenger, 1991). Procedural memory – knowledge of repertoires and techniques – is important because it provides readily accessible material (Berliner, 1994), but can be a liability when musicians revert to familiar territory, which hampers innovativeness (see also Moorman and Miner, 1998a). Declarative memory refers to knowledge of musical theory, e.g. chord progressions, rhythmic patterns, and the disciplines of harmony and counterpoint, etc (Bailey, 1992; Kernfeld, 1995). It can be applied to different situations in countless ways, thus facilitating creativity (Moorman and Miner, 1998a). We concur with Moorman and Miner's (1998a) view that declarative and procedural memory are complementary competencies, and suggest further that this complementarity is situated and dynamic. Practice is also relevant to the quality of an improvisation (Crossan et al., 1996) because it strengthens both declarative (what?) and procedural (how to?) memory, and enhances the scope for learning in the context of interaction. A final condition affecting the quality and degree of improvisation is group size. Groups that are too large have lower levels of improvisation due to loss and distortion of communication, among other factors (Voyer and Faulkner, 1989).

Outcomes

We identify a number of outcomes from jazz improvisation. The most obvious one is the improvised performance which, if done well, is a triumph of competence, dynamic interaction and creativity over the competing pressures of chaos and routinization. Additional outcomes include: flexibility, learning, a personal feeling of transcendence, and an increasing motivation to improvise. Flexibility refers to members' ability to adapt to each other and to the situation. Mapped on to the organizational context, this is especially important in high-velocity environments, where pace, ambiguity and uncertainty are constant elements (Eisenhardt and Bhatia, 2002). Learning is about acquiring and expanding procedural, declarative and episodic memory. Improvisers can also attain a sense of personal transcendence (Barrett, 1998). In Eisenberg's words 'in these moments, participants experience something akin to the French *presque vu* – an unquestionable feeling of rightness. The relatedness problem is solved; through activity with others, people can transcend their separateness and live not only in themselves but also in community' (Eisenberg, 1990, p. 147). Flexibility, learning and transcendence, *inter alia*, in turn enhance the motivation to improvise. Successful improvisation ultimately engenders a constant sense of novelty and the promise of accomplished creativity. One negative outcome is 'trainwreck', where improvisers interfere with one

another to the point that they fail to 'find themselves' on the music (Gioia, 1988; Hatch, 1999).

While the robustness of the jazz metaphor is not in question, earlier research on improvisation in fields other than music performance (including management) suggests there is more to improvisation than current research on jazz improvisation allows for. This implies a need for further theoretical elaboration by determining what we can learn from other models. Below we consider some limitations of relying on a single metaphor for theory development; then proceed to set out the basic features of three alternative models which might complement the insights generated by jazz.

LOOKING BEYOND JAZZ

Metaphor can be defined as '*a way of thinking* and *a way of seeing*' (Morgan, 1997, p. 4), an 'invitation to see the world' (Barrett and Cooperrider, 1990, p. 222), and according to Tsoukas (1993, p. 324) serve to 'generate alternative social realities' (for a detailed critique see Grant and Oswick, 1996, and McCourt, 1997). The metaphor of jazz improvisation has been mapped on to the organizational context in order to help us *see* organizations in a new light, thus generating useful insights into the phenomenon of 'organizational improvisation'. This activity has probably been stimulated by the observation that there seem to be remarkable similarities between what jazz improvisers do and what goes on in organizations with a predilection for action and continuous learning, and a culture of risk-taking and experimentation. Organization theorists who are very knowledgeable about jazz seem to have taken on board Grant and Oswick's (1996, p. 2) point that the use of metaphors enables 'the transfer of information about a relatively familiar subject (often referred to as the source or base domain), to a new and relatively unknown subject (often referred to as the target domain)' (see also Ortony, 1993; Tsoukas, 1991). Weick's (1999, p. 541) suggestion: 'if you want to study organizations, study something else', is also instructive in this enterprise.

However, there are some limitations in using metaphor, and in particular a single metaphor, for theory-building. Grant and Oswick (1996) provide an extensive summary. Some criticisms include the claim that metaphors, couched as they are in seductive figurative language, add little to scientific discourse; they reify and are ideologically questionable; they distort the object under investigation, thus potentially misleading managers. It is also worth noting that over time, metaphors 'die' by loosing their generative properties (Derrida, 1978). In fact, metaphors can gradually rigidify meaning and become more and more closed to empirical research (Letiche and Van Uden, 1998). Finally, from a socio-linguistic point of view, English (and most languages, for that matter) is not a *langue bien faite*; thus to the extent that a language does not posses a biunivocal relationship between signification and signifier, the same word/metaphor can have various meanings depend-

ing on its perceiver (Ricoeur, 1978). This potentially threatens theory diffusion, for example from academia to industry. *In extremis*, this could lead to the adoption of practices and behaviours not only different but even contrary to those intended by the proponents of the metaphor (Letiche and Van Uden, 1998).

In spite of the contribution that the analysis of jazz improvisation has made to our understanding of organizations, we urge caution in relying on a single analytical lens to develop theory, whether this be a metaphor or any other construct applied *metaphorically*. Clegg and Gray (1996) warn about the risk of getting 'locked in' to one way of thinking about an issue while applying a metaphor. Furthermore, due to the potential inherent dangers of inappropriately using one metaphor (e.g. jazz improvisation) to understand a phenomenon which is itself metaphorical (organizational improvisation), we use the terms 'analytical lens' or 'model', for the sake of argument.

Improvisation exists in many aspects of human behaviour. In the interest of parsimony we examine its incidence in three domains: Indian music, music therapy and role theory. These three appear appropriate for the following reasons: the first one retains our discussion within the field of music, thus offering some interesting contrasts with jazz. The second one goes even further to demonstrate the generative effects of simple rather than complex instruments/tools and the fact that virtuosity need not be an issue in improvisational ability. Finally, role theory brings the debate closer to the organizational context.

Improvisation in Indian Music

Improvisation in Indian music provides an interesting contrast to jazz music. Though coming from two very different musical traditions, they also share some remarkable similarities. Indian music is tied closely to the cultural and spiritual life of India, and according to Bailey (1992) is a catalogue of Hindu and Muslim saints, including their teachings and their deeds. Much has been written about the richness and diversity of Indian music, with some observers claiming that it is the most sophisticated musical culture outside the Western world (e.g. Sharron, 1983). While jazz can be represented by a system of notation, Indian music is unwritten, and is created and produced orally (Holroyde, 1972; Sharron, 1983). The basic components of Indian music are the *raga* and the *tala*. The *raga* is the framework within which the improvisation takes place (Bailey, 1992). It consists of two parts: the introductory out-of-tempo slow *alapa* in which the melodic patterns are first established, and the *gat* which sees an intensified pace, decorative pieces and a concentration on the rhythmic properties (Bailey, 1992). The ensuing rhythmic cycle permits variations which in turn constitute the basic rhythmic units – the *tala*. Indian music improvisers believe that the Indian scale system offers thousands of *ragas*, though only about 30–50 are in common use; as for *talas*, there are about

120, with about 15–20 in popular use (e.g. Shankar, 1968; Sharron, 1983). Such routines are not unlike 'licks' applied by jazz improvisers over sets of chords.

Regarding antecedents, improvisation in Indian music is, as in jazz, triggered by the will to be experimental which, in Indian music, does not mean to depart from a given score but to build new music with a wide set of prescribed instrumental routines provided by the *talas*. Experimentation brings with it the risk of error, which requires an 'aesthetic of imperfection' (Weick, 1999) – a climate tolerant of mistakes. As in jazz, action/playing rather than planning/composing must be viewed as *the* way to create new music, demonstrating artistic accomplishment.

In a departure from jazz, the social experience in Indian music is defined by competitiveness rather than cooperation. While the jazz soloist is accompanied by others who provide harmonic and rhythmic support, Indian solos are an exchange of phrases between players who 'try to "outphrase" each other without diverting from the tonal order' (Sharron, 1983, p. 227). In terms of the coordination of social action, Indian music is *space biased* and is grounded in mechanical solidarity (Sharron, 1983). Without attributing simplicity or smallness of scale to his Durkheimian treatment of division of labour in Indian culture, Sharron (1983, p. 228) identifies a simplicity in the division of labour in Indian music where a soloist:

> [p]lays a time-free melodic line; an accompanist responds in melody and rhythm which are bound by the spatial notions of *raga* and *tala*, but not by any form or structure which are defined in measures; solos are juxtaposed, and they do not intermingle with one another, nor do they respond to one another simultaneously, as the case may be in jazz.

Indian music improvisation also relies on a minimal structure, albeit one that shares few traits with that of jazz. To be sure, Indian improvisers also come to the stage with a social structure and a task structure. However, they are permitted little tonal variation and melodic freedom, as opposed to jazz musicians who normally work around and ignore or violate the tonal/melodic/spatial structure (see also Hatch, 1999; Sharron, 1983). *Ragas* are the basic template for improvising. However, while jazz musicians can apply a 'centring strategy' to achieve variation with extensive harmonic zones of manouvre, the direction of the Indian music performance is stated during the introductory *alapa* and subsequent zones of manouvre are primarily rhythmic.

We now turn to the influencing factors affecting the degree and quality of improvisation in Indian music. Leadership, considered one of the cornerstones of jazz improvisation, is almost absent in Indian music. This is mainly explained by the fact that the latter is a competitive activity, and thus coordination mechanisms beyond those conveyed by the minimal structure we presented above, are seldom needed.

The individual characteristics of musicians performing either style of musical improvisation are in many ways similar. Instruments are basically complex, so skill in Indian music is as important as it is in jazz settings. Aspiring musicians spend years developing and polishing their competence either through practicing in jazz or working under a Guru in Indian music. Creativity is a vital ingredient in helping the musician create novelty with the musical procedures embodied in *ragas* and *talas*. Dealing with stress is also important, not only because of the simultaneity of planning and execution (as in jazz), but also because of the competitiveness embedded in Indian music improvisation.

The culture underlying the relationships among group members is as important in Indian music as in jazz. The only difference here is the purpose of that culture. In jazz it is aimed at achieving cooperation while accommodating degrees of competition but in Indian music it is targeted at achieving proficient levels of competition. Such a culture tends towards the adversarial as opposed to the cooperative in the execution of performance.

The difference in the task structure between these two genres of musical improvisation is notable. In jazz, as noted above, the task structure is mainly grounded in the complementarity of declarative memory and procedural memory *in situ*. In Indian music the task structure consists of the knowledge of *talas* and *ragas*, which are, respectively, formulas for melody and rhythm. Although these are also elements stored in memory, they are drawn upon largely in a procedural manner. This means that instead of knowing a set of scores *to improvise upon*, the Indian musician knows a set of musical 'procedures' *to improvise with* (Gosvami, 1957). According to Sharron (1983) the vast amount of ragas serve to compensate for the relative lack of melodic freedom and the heavy dependence on the tonal order. Finally, as in jazz, Indian improvisation works better with small sized groups, ranging from duo to quartet.

Regarding outcomes, Indian music is very similar to jazz in terms of creating a performance, and also in that it creates novelty, promotes learning and may foster feelings of transcendence. However, the sense of 'togetherness' found in jazz improvisation is absent in Indian music partly due to the competitiveness between performers and because the *talas* that constitute rhythmic patterns do not permit as much interpretation of a tune as the harmonic patterns in jazz, nor do they permit collaborative 'comping'.

Summary. This model highlights four major insights. Firstly, it illustrates how this phenomenon unfolds in competitive environments where the complementary forces of teamwork are counteracted by individual achievement. Secondly, it highlights the importance of procedural memory. Thirdly, it points to the significance of retaining a high degree of structure while permitting improvisation: this is achieved by setting out the melodic patterns (in the *alapa*) and working within a tonal structure. The organizational equivalent may be clear objectives and control

mechanisms that do not constrain action. Finally, it shows how improvisation may happen in contexts where leadership is absent.

Music Therapy

Ever since its first recorded widespread use in American hospitals after the Second World War (Schullian and Schoen, 1948), music therapy is now regularly used in many aspects of psychiatric care, as well as among the physically disabled, developmentally disabled, sensory impaired, the elderly and in special education in many parts of the world (e.g. Benjamin, 1983; Plach, 1980). By allowing patients to sing or improvise on a variety of musical instruments, this practice applies music to group therapy as a stimulus for emotional and behavioural change. Music also becomes a vehicle for self-expression and a way to create a new identity. According to Aldridge (1996, p. 46) patients respond to music therapy because human beings 'are organized not in a mechanical way but in a musical form: i.e. a harmonic complex of intersecting rhythms and melodic contours'. This form of treatment has been shown to achieve communication with comatose patients and even to induce consciousness, whereby the coordination of impulses into a musical gestalt underlies recovery (Aldridge, 1996).

This practice is most often used as a treatment in *Gestalt* therapy, which differs from others in its existential and phenomenological perspective, hence experiential, rather than technical (Perls, 1969; Zinker, 1994). *Gestalt* therapists view the situated and immediate nature of improvisation in therapy as an opportunity to help their patients fully integrate the different features of their personality *in the present*, thus realizing healing through the client's actual experience and behaviour.

Regarding antecedents, therapy is a deliberate decision, something it shares with the two musical genres above. Nonetheless, therapy has no explicit ground upon which to improvise, so it cannot be considered a departure or a variation because it does not have anything to depart from or to vary upon (Southworth, 1983; Zinker, 1977). However, although the purpose is to heal a patient through a therapist/client relationship in the present, and although each session begins on a clean slate, so to speak, it could be argued that patients who are making progress might bring lessons from previous sessions to bear on future ones. Thus, in applying therapy to organizational analysis, it may be possible to view past dysfunctional behaviour as a basis upon which successful outcomes can be improvised.

This practice argues that the ability to improvise musically is present in every person and that that ability can be realized by relying on simple instruments such as drums and rattles. Drawing on this contention, therapy uses music improvisation to attain a moment of contact, defined in *gestalt* therapy as an experience that 'occurs when two people relate in a way that is fresh and new' (Southworth, 1983, p. 196), with the potential to contribute towards the patient's healing process or, at least, towards helping the patient express himself/herself in some way. Like

Indian music, therapy has no discrete degrees and can happen instantaneously, but unlike both musical forms, it requires no musical competence except in the therapist, the *de facto* leader.

The social experience of musical improvisation in the context of *gestalt* therapy is supposed to be a moderate one. Clinicians seldom let patients embark on highly affective states but they do make sure that they stay involved with the rest of the group. The notion of 'group' takes on a new meaning in therapy. Although patients are encouraged to follow the group, they are also allowed to play their own music, even if it is dissonant from that of the others (Southworth, 1983). Thus, a sense of involvement is not as relevant as in jazz or Indian music.

A minimal structure is also important here. In therapy, the task's minimal structure is composed of a 'theme' set by the therapist who then leads patients into improvisation by example (Southworth, 1983). Themes include music games like musical storytelling where the group listens to a musical selection and a storyline; the members then develop the story as they listen to intermittent selections. The level of structure depends heavily on the group's personal characteristics (see below). The leader therefore selects tasks and music that match the abilities, tastes and age of the clients. Depending on these characteristics, the therapist can determine the appropriate degree of task and social rules through which the activities are coordinated. The social structure is mainly drawn from social rules that can be embellished by minimal agreements prior to performance – a demanding task with mental patients (Forinash, 1992).

An important influencing factor for successful improvisation in therapy is the nature and role of leadership. The leader plays a pivotal role by generating all the initial ideas and facilitating participation. The leader should, for example, provide an atmosphere conducive to improvising and may encourage members to play music, either verbally or by handing them an instrument (Southworth, 1983). This differs from the case of jazz where the notional leader is essentially a first-among-equals. In some cases there may be dual leadership: one leader provides the theme and maintains the musical flow, while the other encourages members to follow suit, or deals with discipline problems from disruptive patients. The personal characteristics of the members differ markedly from the two musical forms. In this type of therapy, musical improvisation requires no special skill at all. The types of instruments used are also simple, as opposed to the more complex ones used in jazz and Indian music (Towse and Flower, 1993); the singing also requires no special skill and is fairly basic. Furthermore, in the case of patients with learning difficulties and similar disabilities any such skills might be totally absent.

Also, in music therapy, there is no need for the affective skills so important in the musical arena (Eisenberg, 1990). The more important 'skills' include attention span, reality orientation, level of verbal expressiveness, etc. (Plach, 1980). Though the absence of an audience may account for a low level of anxiety, participating in group activities with complete strangers, idealization or mistrust of the thera-

pist, the use of strongly autistic attitudes etc can betray the evidence of 'persecutory anxiety' (Benenzon, 1997), especially in the early sessions. A culture that encourages mistakes as a source of aesthetics and learning is needed together with the belief that action is an important way to gain insight into the patient's behaviour and to foster healing.

Memory has several atypical traits. Improvisers do not share any kind of memory (procedural and declarative) and no practice is required. Some authors actually suggest that it is preferable for the patients not to have any profound knowledge of the instruments (e.g. Benenzon, 1997). The only participant who needs to draw on memory is the leader, in order to initiate or select appropriate music. In line with gestalt thinking, the challenge for the leader is 'to ensure that this musical memory works to add something to the present situation, not to trap people in the past' (Ansdell, 1995, p. 141). However, in applying this perspective to organizations, it could be argued that memory of past actions is an obstacle to be overcome, not just by the leader, but the organizational members. Thus, individuals will be trying to bring about change and generate new knowledge, by using past behaviours as a template upon which to improvise new behaviours. Regarding group size, Southworth (1983) proposes 8–10, arguing that size should neither hamper effective interaction nor result in muddy improvisation and loss of focus. Others recommend a group size of six (e.g. Benenzon, 1997). However, this approach is flexible enough to be used for a single client.

As far as outcomes are concerned, therapy grounded on improvisational music can result in (and aims at) improving the patient's mental condition, either by unearthing the underlying mental dynamics or by building the doctor/patient relationship (Forinash, 1992). However, improvisation in these settings can have just the opposite effect by fostering isolation through solipsism. In any case, some novelty emerges, often in the form of new behaviours and perceptions. This is especially driven by *gestalt* therapy's belief in self-reliance and by its situated nature. Learning, mostly in the shape of self-awareness, often results from this kind of exercise, as does an increased motivation to use it as a means of connecting with the others and the self.

Summary. From the foregoing we can articulate three key lessons from this model. Firstly, it requires no special skills and relies on simple tools, thus taking us closer to the art of bricolage, and within the scope of the ordinary person. Secondly, it requires no memory (except for the leader), and does not draw from a repertoire. Thirdly, leadership plays a more prominent integrative and decision-making role. Taken together, these contributions suggest that this approach is appropriate for dysfunctional groups with little performative competence, poor communication skills, and low self-confidence and initiative, thus requiring strong and directive leadership. This is an important critique of the orthodox view from the application of jazz that improvisation is something best done by highly skilled and self-

directed individuals who have absolute discretion over task, materials and tools. Similarly, while jazz and Indian music performers improvise to deliver a performance and thus derive intrinsic reward, music therapy is a problem-solving activity, with real practical implications for organizations.

Improvisation in Role Theory

Role theory is an area of social psychology concerned with the impact that socially constructed roles have on individual behaviour (Kahn, 1964). Role improvisation is the 'extent to which the organization and meaning of roles are invented by the people involved in a relationship' (Powers, 1981, p. 289). Researchers have been debating whether role-related behaviour is globally determined by an overarching social system or is locally improvised as relationships between actors unfold (Merton, 1957). Clearly, this debate is outside the scope of this article, but the nature of role-improvisation is not. Thus, while acknowledging the structuralist view that role-imposition is operative in some settings, we will focus attention on the interactionist view of the pervasiveness of improvisation (Blumer, 1969) in order to understand how this phenomenon works in role theory drawing on the work of Powers (1981). In pursuing this perspective, we are cognizant of Turner's (1985) argument that interactionists stressed that role playing and role taking processes are not merely about conforming to norms and expectations. Rather, they are ways of finding meaning, and are consistent with the gestalt approach, with particular regard to Lewin's (1948) view that human psychological processes are manifest through the discovery and creation of integrating patterns. Underpinning this approach is the assumption that creativity and a sense of discovery are tied in to the enactment of roles. Thus, even in the most rigid structures, interactionist processes which include improvisation can and do exist (Powers, 1981).

One notable feature of role improvisation is that it often results from an unintended deviation from a structure of prescribed roles (Banton, 1965). So, compared to the preceding models, the degree of deliberateness is lower. If one is unexpectedly called upon to lead a team but is unfamiliar with the standard, requisite norms of leadership, improvisation becomes inevitable. Such improvisation is not a deliberate departure from routinized action, nor necessarily an attempt to impress or entertain, but a matter of necessity. The social experience in role improvisation is one of disclosure and meaning-construction within the context of relationships. Therefore, it is about how people relate to each other in exchange relationships. In the course of their interaction, people continuously re-interpret their relationship through their actions. These re-interpretations arise not to demonstrate performance virtuosity as in jazz and Indian music but for the more mundane purpose of negotiating and sustaining the relationship or in response to changes in roles. Coordination comes about through social interaction while a set

of socially constructed set of routines and behavioural expectations constitute the structure upon which role improvisation proceeds. An equally important aspect of structure is continuity of membership. Powers (1981) contends that role improvisation is enhanced the greater the continuity of personnel in role relationships.

Regarding the set of factors that impact upon the degree of role improvisation, we first consider leadership, drawing from Powers' (1981) treatment of the distribution of power. Power imbalance leads to the imposition of clearly defined role relationships, which are unlikely to change unless resources are modified or coalitions shifted (Emerson, 1972; Merton, 1957). Improvisation is unlikely to take place where an imbalance of power exists. If no one has a strong power advantage (leadership is balanced) then there is no authority to impose roles, and thus the degree of role improvisation is likely to be higher than in situations where that power exists (Weick, 1993). If the balance of power is dynamic rather than static, allowing leadership to rotate among group members, individuals will be motivated to vary the way they act because they may be called upon, at a given point in time, to perform a role with which they are unfamiliar. Depending on the configuration of roles, leadership might function in a way similar to jazz (where roles rotate), or may be absent (as in Indian music). We would expect little role improvisation in therapy where a power imbalance exists and directive leadership is necessary. This shows how different analytical lenses generate competing realities.

Individual characteristics have a very different treatment in role improvisation from that in the previous models. The focus is on the characteristics of a given role and not on the personal traits of its incumbent. Drawing from Powers (1981) we consider the following key characteristics: exposure and anonymity, transitory affect and routinization. The scope for role improvisation increases the less exposed a relationship is to observation by outsiders, which means that external scrutiny raises conformity and public accountability (see also Bott, 1957). The rationale behind this contention is that low exposure to outsiders relaxes the perception of 'panoptical surveillance' that tends to normalize behaviour and submit it to prescribed roles (Sewell, 1998). However, from a social network perspective whereby actor attributes and behaviours are explained in terms of the structure of relations in which they occur (e.g. Burt and Minor, 1983), improvisation may be facilitated or hindered by expectations from the social group/network within which one is embedded. It is also worth noting that a low level of exposure facilitates disclosure. The exposure scenario differs from musical performance where the presence of an audience is both unavoidable and a central feature of the performance. Similarly, a high degree of anonymity enhances the likelihood of role imposition, as people tend to resort to standard forms when their knowledge of another is limited (Powers, 1981; Turner, 1970). From this we can infer that relationships characterized by information-sharing and social familiarity can engender a higher propensity for role improvisation, with important implications for the organizational context in particular where teams are concerned.

People tend to develop their roles in a way that reduces concerns and augments benefits (Turner, 1980). However, performing imposed roles may lead to stressful relationships. Transitory affect is about the degree of fluctuating emotions, whereby emotionally trying relationships require 'cooling off' or 'exempting periods'. During such periods, imposed roles are changed in improvised ways, thus helping deal with stress and emotional costs. Such improvisations may be more marked when people collectively experience an 'uncommon fate' (Powers, 1981), such as environmental turbulence. This is borne out by the emergent organizational improvisation literature (e.g. Brown and Eisenhardt, 1997; Weick, 1993). Finally, routinization may cause some role-related activities to take on an imposed as opposed to an improvised form to the extent that it increases visibility and accountability. It may seem paradoxical that routinization diverts attention away from activities associated with the routinized behaviour, thus permitting scope for improvisation, as long as routinized tasks are executed properly. However, this view is consistent with the notion of minimal structures whereby guidelines at once specify and facilitate action – also analogous to the *alapa* in Indian music.

Apparently, both national and organizational cultures have an impact on role improvisation (e.g. Aram and Walochick, 1996). In keeping with our earlier observations, we argue that a culture in which experimentation is permitted will be conducive to role improvisation in the execution of role-based tasks and activities. An additional aspect of culture that we find relevant for role improvisation is continuity of membership. In this regard, Powers (1981, p. 289) contends that 'the human propensity to improvise increases with familiarity and with the amount of time spent interacting'.

In this type of culture the procedural memory that role improvisation draws upon (routines and role expectations) will most likely be treated as a grammar that can be used to build a number of variations in behaviour (Pentland and Reuter, 1994). Procedural grammar is similar to procedural memory in jazz (repertoires) and Indian music (*ragas*). As for group size, role improvisation mainly occurs in dyadic relationships because it is essentially a relational phenomenon, contingent on the specific nature of each interaction. In this regard it differs from the previous models (except one-to-one doctor–patient therapy).

Role improvisation has several outcomes. It increases flexibility via the incremental adjustment of roles. It fosters learning via local problem solving, as internal changes are incorporated into role expectations. The level of disclosure that this practice entails potentially creates an increasing sense of belonging between organizational members, motivating them to continue their association to the organization. Three additional characteristics of role improvisation are relevant. Firstly, the theory does not mention the existence of discrete degrees of improvisation. Furthermore, improvisation can take place immediately, without the need for social actors to use a 'centering strategy' to build confidence upon each other. Finally, there generally is no audience.

Summary. As a whole, this model offers three interesting insights for understanding improvisation in organizations. Firstly, unlike the previous ones, it focuses the analysis on roles and role expectations and not on individuals and individual characteristics. Secondly, it demonstrates that improvisation can be grounded on procedural, instead of declarative memory – a quality it shares with Indian music. Finally, it brings the level of analysis down to the dyad, thus extending the conceptual scope for theorizing organizational improvisation.

DISCUSSION

In the foregoing we have attempted to make the case for considering models other than jazz in developing a more robust theory of organizational improvisation. Although the alternative models we propose have the potential to yield new insights, the settings they derive from are sufficiently different from the organizational context (and from each other) as to require empirical research in order to better understand the dynamics of organizational improvisation.

The contrast between models is helpful for the purpose of raising questions like: can improvisation be planned or is it necessarily emergent (Miner et al., 2001)? Are improvisational variations blind or intentional (Aldrich, 1999)? Can improvisational knowledge be formalized and appropriated? Do minimal structures constrain (Moorman and Miner, 1998a), liberate, or constrain and liberate (Kamoche and Cunha, 2001)? Is the 'optimal amount of structure' (Eisenhardt and Martin, 2000, p. 1113) obtainable through different types of minimal structures? From our analysis, it is evident that the answers these various models provide can vary greatly. As such, the time seems opportune to study the diversity of improvisational behaviours, instead of implicitly assuming its unity under a jazz-based theory. The four models discussed here diverge in their antecedents, influencing factors and outcomes. This divergence may be a vital stimulus for theorizing organizational improvisation. In this section we piece together the various contributions of these models with reference to the structure set out in Table I.

The antecedents of *organizational* improvisation emerge as one of the major divergence points between improvisation in organizational settings and in the models above. In jazz and Indian music, improvisation is prompted by a *deliberate* attempt to deviate from what is perceived as 'standard' practice or rhythmic formula respectively. In therapy, improvisation is also emergent and exploratory, without the need to depart from a 'standard'. Although there is no deliberate will to improvise, role improvisation happens because of social factors that emerge from the broader social environment. In organizations, improvisation is generally not deliberate. It is mostly triggered by the perception of a problem that has to be tackled hastily.

This reveals a critical issue for building a theory of organizational improvisation. Firstly, managers tend to prefer planning and routinization to improvisa-

tional/emergent behaviour (Mintzberg and McHugh, 1985). Weick (1998, p. 552) contends that 'the intention of the jazz musician is to produce something that comes out *differently* than it did before, whereas organizations typically pride themselves on the opposite, namely, reliable performance that produces something that is standardized and that comes out the same way it did before. It is hard to imagine the typical manager feeling "guilty" when he or she plays things worked out before [whereas the typical jazz musician would]'. This means that they will tend to improvise when they do not have time to plan – thus, the problem to be tackled must demand fast action in order to trigger improvisational behaviour. Situations exist of course when managers talk of a 'bias for action', but even with empowerment, it is unusual to encourage people to work outside the management controls that define organizational structure.[3]

The representation of improvisation as a deliberate, collaborative, temporary effort is central to jazz. If one picks another model, however, improvisation may be represented quite differently. In role improvisation, for example, it may be a partly unintended variation, a process of 'muddling through' (Lindblom, 1959), taking place in an inductive and intuitive rather than methodical way. In this sense, improvisation evokes two different modes of learning: experimental and interactive (Miller, 1996). The possibility of introducing both purposeful and blind variations through improvisation, becomes more explicit if we consider role theory. The importance of blind variations has been stressed by several authors (e.g. Campbell, 1994; Weick, 1979) and would appear to be an important input in further research on organizational improvisation. The musical models may be appropriate when managers make deliberate efforts to improvise; when the external social (or competitive business) context imposes the need for improvisation, role theory becomes an important source of insights.

Cooperation has been emphasized in the empirical research on improvisation (e.g. Miner et al., 2001; Perry, 1991), although some competitiveness may be possible when the organization for example bets on competitive designs (Eisenhardt and Tabrizi, 1995). This suggests the complementary contributions from jazz and, at least, Indian music. The 'centrality' that cooperation and mutuality provide in jazz improvisation might be complemented by the definitive competitive ethos in Indian music. Organizations may need a good blend of internal competition and cooperation. The other models, however, illuminate additional features of the social experience of improvisation: achieving contact (therapy) and disclosure (role improvisation).

An essential aspect of organizational improvisation is alignment (Orlikowski and Hoffman, 1997). Since improvisation is not a common occurrence in many organizational settings, if any element of the organization's systems forfeits attempts to plan while acting, then the whole system is likely to fail (Johnson and Rice, 1987; Orlikowski, 1996). This requires some specific coordinating mechanisms which we have described here as a minimal structure. Where a tight structure is

inevitable (as it often is, as manifest in management controls), members may be able to fall back on a range of flexible recipes of action, analogous to 'licks' and *ragas*. We refer to these as 'repertoires of innovative action'. 'Minimal' means general purpose/guidelines and basic rules. To improvise, individuals must possess general purpose plans which are like a map that offers various ways to get from one point to another. The tools that organizations use to produce their desired type of 'planning' include strategic intent (Hamel and Prahalad, 1994) and shared vision (Senge, 1990) – mechanisms that integrate individual actions by maintaining focus but that allow (and foster) diversity of action and thought. General purpose tools and technology are also necessary for real-time planning (Orlikowski, 1996). Thus, if one decides to change the nature of outputs instantaneously, then one's technology must be flexible enough to withstand that change.

This gives rise to the concept of 'radically tailorable tools' (Malone et al., 1992) that we find crucial for improvising organizations. Improvisational ability rests on having a multiple purpose structure (Ciborra, 1991), one that goes far in integrating but only partially constrains. This structure comprises an explicit and clear set of responsibilities and priorities (Hutchins, 1991); frequent milestones, to instill a sense of urgency (Eisenhardt and Tabrizi, 1995) and to provide the frequent feedback that fuels improvisers (Gardner and Rogoff, 1990); and choreographed transitions that purposefully introduce 'problems' (Brown and Eisenhardt, 1997). This 'generality' of organizational minimal structures shows the need to delineate explicitly, specific elements of the minimal structure whereas in some of our models, these are largely tacit and implicit. This serves to signify potential areas of difficulty in theorizing organizational improvisation on the basis of metaphors and related analytical lenses, while at the same time highlighting the need to pay more attention to the tacit side of human action in organizations.

'Minimality' defines three further dimensions for successful improvisation. First comes minimal agreement, meaning that some dissention of worldviews among members allows for a sharper scanning and thus to earlier and better detection of 'problems' that require fast action (Perry, 1991). Second, organizations need to maintain a minimal level of critical resources, bearing in mind the degree of slack necessary for innovative activity (Dougherty, 1996; Hedberg et al., 1976). Finally, minimal rationality helps keep action focused on ends, avoiding reification of means and concentrating on finding the questions the organization needs to ask. Minimal rationality also aims at keeping organizations from rationalizing all activity into procedures, thereby destroying adaptivity to both internal and external circumstances (Johnson and Rice, 1984). The differing degree of 'deliberateness' and concomitant zones of manouvre found in the various models are instructive in this regard.

We now consider those factors that influence improvisation. We begin with leadership. Apart from a certain degree of directivity, leaders must be proficient (and perceived as such by those they lead) in task performance (Johnson and Rice,

1987). In improvisational contexts, leaders may have to strike a balance between directive and participative styles (Cunha et al., 2003). Music therapy provides insights for directive leadership which is also facilitatory. This model is also appropriate for high power distance cultures. Insights from jazz are helpful for more democratic contexts where leadership is emergent and rotational. Indian music generates insights for task performance where leadership is apparently absent, and may be appropriate for self-directed, competitive and high-performing teams. Role improvisation introduces a new perspective because it explicitly addresses the significance of power.

We have noted that individual characteristics are theorized in different ways across the four models. In jazz and Indian music, virtuosity, competence and creativity are definitive features, implying that improvisation is a technically elitist undertaking. These models would suggest that managers should strive to cultivate highly technical skills combined with creativity. In therapy, on the other hand, no special skills are required. Anyone can improvise, and they can do so with simple tools. The challenge then becomes one of assuring quality, safety, efficiency etc. For the organization, the condition of technical ability in jazz and Indian music is thus complemented by the simplicity of music therapy to take account of the diversity of skill and technological capabilities in organizations. Evidence of the variation-generative power of play, errors, misunderstandings and human limitations (e.g. Aldrich and Kenworthy, 1999; Miner, 1994), is more accurately evoked in the case of therapy than in the musical models. In addition as we noted above, the therapy model is appropriate for dysfunctional organizations.

Role improvisation takes us even farther from the focus on individual abilities to the nature of the role itself. This suggests a need to examine the scope for improvisation and creativity at the level of social interaction amongst members, in addition to task performance. Furthermore, since the focus is on the characteristics of the role incumbent, managers would need to create circumstances that engender role improvisation, such as relaxing surveillance, teaching adaptability in anticipation of stressful/dangerous situations, and preventing routinization from taking root.

We now turn to culture. The culture in jazz is both supportive and competitive, in Indian music it tends to be competitive, while in music therapy it is supportive and nurturing. In music therapy, there is a much stronger emphasis on experimentation and bricolage than in the two musical forms. So, if patients do not feel comfortable with an instrument, they can easily switch to another at any time. A jazz improviser may switch between instruments in a performance for the purposes of exploring a new musical texture, not necessarily to feel more at ease, or because he suddenly discovers he cannot play it. In music therapy, the notion of 'aesthetics of imperfection' (Weick, 1999) takes on a new meaning because the objective of creating a musical product is even less important than achieving

healing and contact. Common to all the models is the need to allow for risk-taking and learning.

The treatment of memory in the four models highlights different concerns for the organizational context. We noted that in jazz, declarative and procedural memory are complementary (Moorman and Miner, 1998a), and situated as well as episodic. This model appears to give the manager a fairly comprehensive ambit for striking a balance between *what* and *how*, and then locating sets of decisions in a context of *when*. However, it can be difficult to determine where relevant knowledge lies and how to access it in times of crisis (e.g. Goodhue et al., 1992). In this case, procedural memory as in Indian music (*ragas*) and role improvisation (scripts and grammar) becomes critical. Caution must be exercised because procedural memory might degenerate into routinization and hinder innovativeness. Both musical models are instructive for highly competent and self-motivated performers, as opposed to dysfunctional groups and low performers for whom the more appropriate model would be music therapy which invests memory (which could be declarative, procedural and situated) in the leader.

Regarding group size, empirical research has yet to reach consensus. Studies argue for both large (e.g. Brown and Eisenhardt, 1997; Ciborra, 1991) and small groups (Brown and Duguid, 1991; Hutchins, 1991), a decision that seems to depend on the specific format of both the supporting minimal structure and the pattern of communication among members. Regarding group composition it is difficult, again, to find common ground. Some studies support a 'mono-functional' view of groups (e.g. Hutchins, 1991; Orlikowski, 1996), while others argue for 'multi-functional' teams to produce the requisite variety that enables the attainment of higher levels of improvisation (Hedberg et al., 1976; Johnson and Rice, 1984). This has implications for the extent to which individuals are specialized or multi-skilled, as in the musical models and role theory, or where the task does not entail the possession of special skills as in music therapy.

In conclusion we argue that the sorts of outcomes the four models generate depict a fairly broad spectrum of the types of outcomes we might expect from real-life organizational improvisation. For example, the flexibility ascribed to jazz musicians (Eisenberg, 1990; Gioia, 1988) is an important quality/outcome for organizational improvisation. Such flexibility is taken to a higher level in models like improvisation-based therapy with an extremely low degree of formal structure. Further research would help clarify the suitability of such flexibility in activities such as teamwork in organizational settings. This would provide an interesting parallel with the organizational level, where flexibility has been shown to be particularly important in enabling organizations to respond to unexpected occurrences, either internally (Pearson et al., 1997) or externally (Ciborra, 1991; Moorman and Miner, 1995). Other outcomes like transcendence and achieving a sense of belonging allow us to theorize the social aspects in addition to the task-

related ones such as flexibility, innovation and learning. Achieving specific goals like healing (in therapy) is analogous to organizational problem-solving, where such problem-solving in undertaken through close interaction between the leader and subordinates. This highlights the potential contribution of little-explored models in this emergent discipline.

CONCLUSION

In the foregoing we sought to pinpoint various ways in which our models can be applied to organizational settings, suggesting which insights might be appropriate for what contexts. We now consider some additional implications for management practice. Given the differing perspectives these analytical lenses reveal, it would clearly be appropriate for managers to be eclectic in their choice of model. The jazz and Indian music models are appropriate for high-performing, self-directed workers, or for organizations that see themselves putting on a performance, e.g. providing a service for customers (the audience). However, given the relative significance of concepts like leadership and memory, a choice would have to be made about when to foster rotating leadership (jazz), or rely on procedural memory when time pressure requires a quick decision (Indian music). The Indian music model appears particularly relevant for managers who wish to set up explicit guidelines for action (as in the *alapa*), and subsequently permit improvisation within these constraints. It may also be appropriate when managers wish to foster a purely competitive atmosphere. The music therapy model is appropriate when managers want to create an innovative culture in dysfunctional organizations where the dysfunctionalism emanates for example from rigid bureaucracy that stifles initiative-taking and decision-making, and where skill levels are currently low. The role theory model can be applied where there is an interactional relationship, e.g. employees dealing with third parties like customers, or where organizational members are faced with little choice but to improvise, e.g. in highly interdependent or desperate situations. These suggestions are offered to managers who wish to foster improvisation through innovative action, rapid decision-making and adaptability amongst its workforce. There are situations where improvisation may not be necessary or desirable, e.g. where an uncalled for departure from routinized action in predictable circumstances might result in dire consequences, e.g. routine surgery. Therefore, every organization has to determine the objectives and degree of improvisation it requires, and secondly, the appropriate improvisational model or combination of models.

We now turn to the implications for research. When we say that a person is a lion, we are probably referring to his or her courage rather then to choice of food or facial hair. The use of metaphor in the emergent organizational improvisation literature is a powerful mechanism for generating insights into this phenomenon. This paper has characterized the most significant insights arising from the appli-

cation of improvisational jazz, the predominant metaphor so far. Given the robustness of jazz improvisation, as well as its accessibility to theorists (many of whom seem to be jazz enthusiasts too), we expect this state of affairs to persist into the foreseeable future. However, organizations are not jazz combos, just like people are not lions. As such, we must not lose sight of the fact that there are several important differences between the forms of improvisation that occur within these two settings – differences that are not immediately evident if our theorizing is guided by a 'one-best-metaphor' approach.

Our purpose in this paper therefore is to broaden the theoretical spectrum upon which the study of organizational improvisation can be grounded, in order to uncover what other suitable models might offer, either in contrast with or in a complementary fashion to the jazz metaphor. The three additional models presented here have given us new ways of 'seeing' organizations and pointing to new directions in which research in organizational improvisation might develop. However as researchers we must keep an open mind about the opportunities and shortcomings of whatever analytical lenses we use to cast our gaze upon the organizational landscape. The foregoing will hopefully lead to further research to test the applicability of these models in organizational contexts. Within the models themselves, researchers could explore variations, e.g. the different genres of the musical forms, or proactive *vis-à-vis* reactive improvisation such as in role theory. Further research might also examine whether it is more appropriate to generate a synthesis of these seemingly divergent insights. As such, rather than pick one model for a particular context, would it be better to pick insights from these various models, and bring them together in an overarching model of organizational improvisation? Research might also explore other models like theatre, conversation, or genres of jazz where a wider range of structural aspects than the ones we have considered are suspended.[4] This would pave the way for a more incisive analysis of the structuration perspective. We hope that this discussion will spur further research into these challenging and exciting issues, bringing us to a better understanding of the nature and complexity of organizational improvisation.

NOTES

[1] The insights we generate here about the 'jazz metaphor' are drawn from the treatment of jazz improvisation in the emergent literature. This means that our discussion might seem to be too dependent on the 'swing/trad jazz' genre. This is not to deny the validity of 'free jazz'. In the conclusion we acknowledge the need for further research in this genre. We also hasten to add that our application of 'minimal structures' takes us beyond the orthodox definition of structure inherent in the organizational improvisation literature which appears limited to the rhythmic, melodic and harmonic aspects. It is also worth noting that even within postbop in which you can improvise the rules and also improvise *outside* as opposed to *within* or *with* forms (Zack, 2000), you still need a reference point – a song, a riff, a motif, or the elements of the minimal structure discussed here. As Moorman and Miner (1998a) point out, in free jazz the performers will ordinarily start with a 'head' then move on to melodic improvisations unrelated to any specific harmonic, rhythmic or melodic standards. The actual playing starts somewhere: in a particular

key. Since even the most innovative organizations have to have an initial goal, product concept or some form of management control, 'free' inevitably becomes a matter of interpretation. For our purposes, a reference point or structure is situated in the social and technical context of the performance. The initiators of free jazz like Ornette Coleman, retained episodic references, phrases, riffs and motifs that echoed previous compositions, drawing from episodic, situated memory, thus reminding us of Charles Mingus' famous retort: 'you can't improvise on nuthin'.

[2] We are grateful to a *JMS* reviewer for pointing this out.

[3] We must not romanticize any form of jazz. Operating outside controls, be they management, financial or cultural, may be very creative, but it often teeters dangerously on the edge of illegality and fraud. Examples of improvisation gone haywire (the fear of which leads managers to institute tight controls that in some contexts hamper innovativeness) include Barings Bank, Daiwa Bank, Sumitomo, and more recently Allied Irish and Enron.

[4] The challenge will be to find organizational alternatives to suspending harmonic and similar structures (i.e. those analogous to management controls and strategies), without inviting chaos. Our therapy metaphor offers a way forward because it does not treat confusion as chaos, but as uncharted territory. See also Zack (2000).

REFERENCES

Aldrich, H. (1999). *Organizations Evolving*. Thousand Oaks, CA: Sage.

Aldrich, H. and Kenworthy, A. L. (1999). 'The accidental entrepreneur. Campbellian antinomies and organizational foundings'. In Baum, J. A. C. and McKelvey, B. (Eds), *Variations in Organization Science: In Honor of Donald T. Campbell*. Thousand Oaks, CA: Sage, 19–33.

Aldridge, D. (1996). *Music Therapy and Practice in Medicine: From out of the Silence*. London: Jessica Kingsley.

Ansdell, G. (1995). *Music for Life: Aspects of Creative Music Therapy with Adult Clients*. London: Jessica Kingsley.

Aram, J. D. and Walochick, K. (1997). 'Improvisation and the Spanish manager'. *International Studies of Management and Organization*, **26**, 73–89.

Bailey, D. (1992). *Improvisation: Its Nature and Practice in Music*. New York: Da Capo Press.

Banton, M. (1965). *Roles: An Introduction to the Study of Social Relations*. Basic Books, New York.

Barrett, F. J. (1998). 'Creativity and improvisation in organizations: implications for organizational learning'. *Organization Science*, **9**, 5, 605–22.

Barrett, F. J. and Cooperrider, D. L. (1990). 'Generative metaphor intervention: a new behavioural approach for working with systems divided by conflict and caught in defensive perception'. *Journal of Behavioural Science*, **26**, 2, 219–39.

Bastien, D. T. and Hostager, T. J. (1988). 'Jazz as a process of organizational innovation'. *Communication Research*, **15**, 5, 582–602.

Bastien, D. T. and Hostager, T. J. (1991). 'Jazz as social structure, process and outcome'. In Buckner, R. T. and Weiland, S. (Eds), *Jazz in Mind: Essays on the History and Meanings of Jazz*. Detroit: Wayne State University Press, 148–65.

Bastien, D. T. and Hostager, T. J. (1995). 'On cooperation: a replication of an experiment in jazz and cooperation'. *Comportamento Organizacional e Gestão*, **2**, 1, 33–46.

Benenzon, R. O. (1997). *Music Therapy Theory and Manual: Contributions to the Knowledge of Nonverbal Contexts*. Springfield, IL: Charles C. Thomas.

Benjamin, B. (1983). 'The singing hospital – integrated group therapy in the Black mentally ill'. *South African Medical Journal*, **63**, 23, 897–9.

Berliner, P. F. (1994). *Thinking in Jazz: The Infinite Art of Improvisation*. Chicago: Chicago University Press.

Bettis, R. A. and Hitt, M. A. (1995). 'The new competitive landscape'. *Strategic Management Journal*, **16**, 7–19.

Blumer, H. (1969). *Symbolic Interaction*. Englewood Cliffs, NJ: Prentice-Hall.

Bott, E. (1957). *Family and Social Network: Roles, Norms and External Relationships in Ordinary Urban Families*. London: Tavistock.

Brown, J. S. and Duguid, P. (1991). 'Organizational learning and communities-of-practice: toward a unified view of working, learning and innovation'. *Organization Science*, **2**, 1, 40–57.

Brown, S. L. and Eisenhardt, K. M. (1997). 'The art of continuous change: linking complexity theory and time-paced evolution in relentlessly shifting organizations'. *Administrative Science Quarterly*, **42**, 1, 1–34.

Burt, R. S. and Minor, M. J. (1983). *Applied Network Analysis*. London: Sage.

Campbell, D. T. (1994). 'How individual and face-to-face selection undermine firm selection in in organizational evolution'. In Baum, J. A. C. and Singh, J. V. (Eds), *Evolutionary Dynamics of Organizations*. New York: Oxford University Press, 23–38.

Ciborra, C. U. (1991). 'The platform organization: recombining strategies, structures and surprises'. *Organization Science*, **7**, 2, 103–18.

Clegg, S. R. and Gray, J. T. (1996). 'Metaphors in organizational research: of embedded embryos, paradigms and power people'. In Grant, D. and Oswick, C. (Eds), *Metaphor and Organizations*. London: Sage, 74–94.

Crossan, M. M. and Sorrenti, M. (1997). 'Making sense of improvisation'. *Advances in Strategic Management*, **14**, 155–80.

Crossan, M. M., White, R. E., Lane, H. and Klus, L. (1996). 'The improvising organization: where planning meets opportunity'. *Organizational Dynamics*, **24**, 4, 20–35.

Cunha, M. P., Cunha, J. V. and Kamoche, K. (1999). 'Organizational improvisation: what, when, how and why'. *International Journal of Management Reviews*, **1**, 3, 299–341.

Cunha, M. P., Kamoche, K. and Cunha, R. C. (2003). 'Organizational improvisation and leadership: a field study in two computer-mediated settings'. *International Studies of Management and Organization*, **33**, 1, 34–57.

Derrida, J. (1978). *Margins of Philosophy*. London: Harvester.

Dougherty, D. (1996). 'Organizing for innovation'. In Clegg, S. R., Hardy, C. and Nord, W. R. (Eds), *Handbook of Organization Studies*. Thousand Oaks, CA: Sage, 424–39.

Durkheim, E. (1933). *The Division of Labor in Society*. New York: Free Press.

Eisenberg, E. (1990). 'Jamming: transcendence through organizing'. *Communication Research*, **17**, 2, 139–64.

Eisenhardt, K. M. and Bhatia, M. M. (2002). 'Organizational complexity and computation'. In Baum, J. A. C. (Ed.), *Companion to Organizations*. Oxford: Blackwell, 442–66.

Eisenhardt, K. M. and Martin, J. A. (2000). 'Dynamic capabilities: what are they?'. *Strategic Management Journal*, **21**, 1105–21.

Eisenhardt, K. M. and Sull, D. N. (2001). 'Strategy as simple rules'. *Harvard Business Review*, **79**, 1, 107–16.

Eisenhardt, K. M. and Tabrizi, B. N. (1995). 'Accelerating adaptative processes: product innovation in the global computer industry'. *Administrative Science Quarterly*, **40**, 1, 84–110.

Emerson, R. (1972). 'Exchange theory. Part II: Exchange relations and network structures'. In Berger, J., Zelditch, M. and Anderson, B. (Eds), *Sociological Theories in Progress*. Boston: Houghton Mifflin, 58–87.

Forinash, M. (1992). 'A phenomenological analysis of Nordoff-Robbins approach to music therapy: the lived experience of clinical improvisation'. *Music Therapy*, **11**, 120–41.

Gardner, W. and Rogoff, B. (1990). 'Children's deliberateness of planning according to task circumstances'. *Developmental Psychology*, **26**, 3, 480–7.

Gioia, T. (1988). *The History of Jazz*. Oxford: Oxford University Press.

Goodhue, D. L., Wybo, M. D. and Kirsch, L. J. (1992). 'The impact of data integration on the costs and benefits of information systems'. *MIS Quarterly*, **16**, 293–311.

Gosvami, O. (1957). *The Story of Indian Music*. Bombay: Asia House.

Grant, D. and Oswick, C. (Eds) (1996). *Metaphor and Organizations*. London: Sage.

Greenleaf, R. K. (1979). *Servant Leadership: A Journey into the Nature of Legitimate Power and Greatness*. New York: Paulisi Press.

Hamel, G. and Prahalad, C. K. (1994). *Competing for the Future: Breakthrough Strategies for Seizing Control of your Industry and Controlling the Markets of Tomorrow*. Boston, MA: Harvard Business School Press.

Hatch, M. J. (1997). 'Jazzing up the theory of organizational improvisation'. *Advances in Strategic Management*, **14**, 181–91.

Hatch, M. J. (1999). 'Exploring the empty spaces of organizing: how improvisational jazz helps redescribe organizational structure'. *Organization Studies*, **20**, 1, 75–100.

Hedberg, B. L. T., Nystrom, P. C. and Starbuck, W. H. (1976). 'Camping on seesaws: prescriptions for self-designing organizations'. *Administrative Science Quarterly*, **21**, 41–65.

Holroyde, P. (1972). *The Music of India*. New York: Praeger.

Hutchins, E. (1991). 'Organizing work by adaptation'. *Organization Science*, **2**, 1, 14–39.
Johnson, B. M. and Rice, R. E. (1984). 'Reinvention in the innovation process: the case of word processing'. In Rice, R. E. (Ed.), *The New Media*. Beverly Hills, CA: Sage, 157–83.
Johnson, B. M. and Rice, R. E. (1987). *Managing Organizational Innovation: The Evolution from Word Processing to Office Information Systems*. New York: Columbia University Press.
Kahn, R. L. (1964). *Organizational Stress: Studies in Role Conflict and Ambiguity*. New York: Wiley.
Kamoche, K. and Cunha, M. P. (1999). 'Teamwork, knowledge-creation and improvisation'. *Readings in Organization Science*. Lisbon: ISPA, 435–52.
Kamoche, K. and Cunha, M. P. (2001). 'Minimal structures: from jazz improvisation to product innovation'. *Organization Studies*, **22**, 5, 733–64.
Kamoche, K., Cunha, M. P. and Cunha, J. V. (Eds) (2002). *Organizational Improvisation*. London: Routledge.
Kamoche, K., Cunha, M. P. and Cunha, R. C. (Eds) (2003). 'Improvisation in organizations.' *International Studies of Management and Organization*, **33**, 1.
Kernfeld, B. (1995). *What to Listen for in Jazz*. New Haven: Yale University Press.
Lave, J. (1988). *Cognition in Practice: Mind, Mathematics, and Culture in Everyday Life*. Cambridge: Cambridge University Press.
Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
Letiche, H. and Van Uden, J. (1998). 'Answers to a discussion note: on the "metaphor of the metaphor"'. *Organization Studies*, **19**, 6, 1029–33.
Lewin, K. (1948). *Resolving Social Conflicts*. New York: Harper and Brothers.
Lindblom, C. (1959). 'The science of "muddling through"'. *Public Administration Review*, **19**, 79–88.
Malone, T. W., Lai, K. Y. and Fry, C. (1992). 'Experiments with OVAL: a radically tailorable tool for cooperative work'. *Proceedings from the Conference on Computer Supported Cooperative Work*. ACM/SIGCHI & SIGOIS, 289–97.
McCourt, W. (1997). 'Discussion note: using metaphors to understand and to change organizations: a critique of Gareth Morgan's approach'. *Organization Studies*, **18**, 3, 511–22.
Merton, R. (1957). 'The role-set: problems in social theory'. *British Journal of Sociology*, **8**, 106–20.
Micklethwait, J. and Wooldridge, A. (1996). *The Witch Doctors: What the Management Gurus are Saying, Why it Matters and How to Make Sense of it*. London: Heinemann.
Miller, D. (1996). 'A preliminary typology of organizational learning: synthesizing the literature'. *Journal of Management*, **22**, 485–505.
Miner, A. S. (1994). 'Seeking adaptive advantage: evolutionary theory and managerial action'. In Baum, J. A. C. and Singh, J. V. (Eds), *Evolutionary Dynamics of Organizations*. New York: Oxford University Press, 76–89.
Miner, A., Bassoff, P. and Moorman, C. (2001). 'Organizational improvisation and learning: a field study'. *Administrative Science Quarterly*, **46**, 304–37.
Mintzberg, H. and McHugh, A. (1985). 'Strategy formation in an adhocracy'. *Administrative Science Quarterly*, **30**, 160–97.
Moorman, C. and Miner, A. (1995). *Walking the Tightrope: Improvisation and Information in New Product Development*. Report No. 95-101. Cambridge, MA: Marketing Science Institute.
Moorman, C. and Miner, A. (1998a). 'Organizational improvisation and organizational memory'. *Academy of Management Review*, **23**, 4, 698–723.
Moorman, C. and Miner, A. (1998b). 'The convergence between planning and execution: improvisation in new product development'. *Journal of Marketing*, **62**, 3, 1–20.
Morgan, G. (1997). *Images of Organization*, 2nd ed. Newbury Park, CA: Sage.
Orlikowski, W. J. (1996). 'Improvising organizational transformation over time: a situated change perspective'. *Information Systems Research*, **7**, 1, 63–92.
Orlikowski, W. J. and Hoffman, J. D. (1997). 'An improvisational model for change management: the case of groupware technologies'. *Sloan Management Review*, Winter, 11–21.
Ortony, A. (1993). *Metaphor and Thought*. Cambridge: Cambridge University Press.
Pearson, C. M., Clair, J. A., Misra, S. K. and Mitroff, I. I. (1997). 'Managing the unthinkable'. *Organizational Dynamics*, **25**, 2, 51–64.
Pentland, B. T. and Reuter, H. H. (1994). 'Organizational routines as grammars of action'. *Administrative Science Quarterly*, **39**, 484–510.
Peplowski, K. (1998). 'The process of improvising'. *Organization Science*, **9**, 5, 560–1.
Perls, F. S. (1969). *Ego, Hunger, and Aggression: The Beginning of Gestalt Therapy*. New York: Random House.

Perry, L. T. (1991). 'Strategic improvising: how to formulate and implement competitive strategies in concert'. *Organizational Dynamics*, **19**, 4, 51–64.
Peters, T. J. (1992). *Liberation Management: The Necessary Disorganization for the Nanosecond Nineties*. New York: Alfred A. Knopf.
Peters, T. J. (1994). *The Tom Peters Seminar*. New York: Vintage Books.
Pfeffer, J. (1992). *Managing with Power: Politics and Influence in Organizations*. Boston, MA: Harvard Business School Press.
Plach, T. (1980). *The Creative use of Music in Group Therapy*. Springsfield, IL: Charles C. Thomas.
Powers, C. (1981). 'Role imposition or role improvisation: some theoretical principles'. *The Economic and Social Review*, **12**, 4, 287–99.
Ranson, S., Hinings, B. and Greenwood, R. (1980). 'The structuring of organizational structures'. *Administrative Science Quarterly*, **25**, 1–17.
Ricoeur, P. (1978). *The Philosophy of Paul Ricoeur: An Anthology of his Work*. Reagan, C. and Stewart, D. (Eds). Boston: Beacon Press.
Ries, A. and Trout, J. (1986). *Marketing Warfare*. New York: Pluve.
Roberts, W. (1991). *Leadership Secrets of Attila the Hun*. New York: Warner Books.
Roberts, W. and Ross, B. (1996). *Make it So: Leadership Lessons from Star Trek: The Next Generation*. New York: Pocket Books.
Schullian, D. and Schoen, M. (1948). *Music and Medicine*. New York: Henry Schuman.
Senge, P. M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. London: Century Business.
Sewell, G. (1998). 'The discipline of teams: the control of team-based industrial work through electronic and peer surveillance'. *Administrative Science Quarterly*, **43**, 397–428.
Shankar, R. (1968). *My Music, My Life*. New York: Simon & Schuster.
Sharron, A. (1983). 'Time and space bias in group solidarity: action and process in musical improvisation'. *International Social Science Review*, **58**, 4, 222–30.
Southworth, J. S. (1983). 'Improvisation for nonmusicians: a workshop approach'. *Journal of Creative Behavior*, **17**, 3, 195–205.
Stacey, R. E., Griffin, D. and Shaw, P. (2000). *Complexity and Management: Fad or Radical Challenge to Systems Thinking?* London: Routledge.
Towse, E. and Flower, C. (1993). 'Levels of interaction in group improvisation'. In Heal, M. and Wigram, T. (Eds), *Music Therapy in Health and Education*. London: Kingsley, 73–81.
Tsoukas, H. (1991). 'The missing link: a transformational view of metaphors in organizational science'. *Academy of Management Review*, **16**, 3, 566–85.
Tsoukas, H. (1993). 'Analogical reasoning and knowledge generation in organizational theory'. *Organization Studies*, **14**, 3, 323–46.
Turner, R. (1970). *Family Interaction*. New York: Wiley.
Turner, R. (1980). 'Strategy for developing an integrated role theory'. *Humboldt Journal of Social Relations*, **7**.
Turner, R. (1985). 'Unanswered questions in the convergence between structuralist and interactionist role theories'. In Helle, H. J. and Eisenstadt, S. N. (Eds), *Micro-Sociological Theory: Perspectives on Sociological Theory*. London: Sage, 22–36.
Voyer, J. J. and Faulkner, R. R. (1989). 'Organizational cognition in a jazz ensemble'. *Empirical Studies of the Art*, **7**, 1, 57–77.
Weick, K. E. (1979). *The Social Psychology of Organizing*, 2nd ed. New York: McGraw-Hill.
Weick, K. E. (1980). 'Blind spots in organizational theorizing'. *Group and Organization Studies*, **5**, 2, 178–88.
Weick, K. E. (1993). 'Organizational redesign as improvisation'. In Huber, G. P. and Glick, W. H. (Eds), *Organizational Change and Redesign*. New York: Oxford University Press, 346–79.
Weick, K. E. (1998). 'Introductory essay: improvisation as a mindset for organizational analysis'. *Organization Science*, **9**, 5, 543–55.
Weick, K. E. (1999). 'The aesthetic of imperfection in organizations'. In Cunha, M. P. and Marques, C. A. (Eds), *Readings in Organization Science*. Lisbon: ISPA, 541–63.
Zack, M. (2000). 'Jazz improvisation and organizing: once more from the top'. *Organization Science*, **11**, 227–34.
Zinker, J. C. (1977). *The Creative Process in Gestalt Therapy*. New York: Brunner/Mazel.
Zinker, J. C. (1994). *In Search of Good Form*. San Francisco: Jossey-Bass.