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Miguel Pina E. Cunha , Ken Kamoche & Rita Campos E. Cunha

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Miguel Pina e Cunha, Ken Kamoche, and
Rita Campos e Cunha

Organizational Improvisation and Leadership

A Field Study in Two Computer-Mediated Settings

Abstract: *Drawing on empirical evidence collected in two case studies, we present a tentative model of leadership in a context of organizational improvisation. This article discusses the role of leadership in the process of improvisation, suggesting that opposite leadership behaviors are simultaneously integrated when an important task has to be performed in a turbulent environment with flexible resources. This type of leadership creates "minimal" social and task structures that, together with a perception of the task at hand as individually important to group members, invites the team to improvise. This model builds the argument for a dialectical perspective on organizations, highlights the role of important events as action generators, and underscores the presence of curvilinear relationships in organizational phenomena where linear ones are conventionally assumed.*

Interest in the field of organizational improvisation has changed substantially in the last five years or so. Organizational improvisation has evolved from a marginal theme to become a vibrant and growing research arena. This is attested to by various publications, including Meyer's (1998) edited issue of the journal *Or-*

Miguel Pina e Cunha and Rita Campos e Cunha are assistant professors in the Faculdade de Economia at the Universidade Nova de Lisboa, in Portugal. Ken Kamoche is an associate professor in the Department of Management at the City University of Hong Kong.

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ganization Science, and Kamoche et al.'s (2002) volume of readings. Research papers on the topic also reflect the diversification of the issues related with improvisation, including learning (Miner et al. 2001), organizational design (Weick 1993a), change (Orlikowski 1996), and new product development (Brown and Eisenhardt 1997).

So far, there has been very little interest in the crucial subject of leadership in the context of improvisation. As such, a major research question arises: "What is the role of leadership in the improvisational process?" The answer is unclear because empirical research on the topic is limited. In this article, we aim to provide a better understanding of improvisation by exploring the leader's role in the process. Up to now, differing views of the impact of leadership on improvisation have been available. On the one hand, leaders may matter. For example, task-oriented leaders (Fiedler 1967) may create conditions that obstruct improvisation. These conditions may include low levels of autonomy and a higher dependency on orders. On the other hand, leadership may be viewed as having a relatively peripheral influence on improvisation, since improvisation is mainly understood as an emergent rather than a planned process. Therefore, leadership can be presumed to play only a modest role in improvised action. Additionally, as Weick (1999) noted, jazz disdains the division of labor, so that any improviser is both leader and follower.

To explore the extent to which each of these views reflects organizational reality, this study analyzes the role of leadership in improvisational situations; and it is organized into four sections. We begin with a theoretical introduction that presents a general overview of the improvisation process and an analysis of what the literature has to say about the role of leadership therein. Then, we present the set of methodological considerations that underlie the research, followed by the major findings. Finally, we link those findings to the theme of leadership in organizational improvisation.

This research generated some major conclusions. First, the leadership of improvisations implies the capacity to articulate demands that are often perceived as opposites in organization theory. It requires, for example, high levels of autonomy in the context of clear rules. Second, we found that the relationships depicted in the literature as linear may in fact be curvilinear. The level of turbulence and the level of social and task structure are often seen as being positively and negatively correlated with the level of improvisation, respectively; but our study suggests otherwise. Although very low levels of turbulence do reduce the likelihood of improvisation, very high levels of turbulence also hamper it significantly. High levels of social and task structure hamper improvisation but, as research on jazz improvisation shows, low levels of this type of structure may also hinder this phenomenon. Our research also clarifies the perceived importance of the task at hand in engendering organizational action. Our data show that, even in the presence of all the triggers for improvisation addressed in the literature, this phenomenon may not take place, simply because its potential ac-

tors do not deem these triggers to be important. As far as theory is concerned, this finding opens up a complementary explanation for many phenomena in both leadership and improvisation.

Organizational improvisation: Antecedents, process, outcomes

Organizational improvisation can be defined as the conception of action as it unfolds, by an organization's members drawing on available resources. This section discusses the antecedents, the process, and the outcomes of organizational improvisation, which has been said to be determined fundamentally by the speed and uncertainty of business contexts. However, it can have an internal origin as well. Its unfolding has been associated by several authors (Brown and Eisenhardt 1997; Kamoche and Cunha 2001) with the existence of minimal structures and experimental cultures. The outcomes of improvisation constitute an open question, since this practice may help to resolve an organization's problems, but it may also fail that purpose (Miner et al. 2001).

Antecedents

The relevance of improvisation for contemporary organizations has been mostly presented as a consequence of the increasing levels of speed and turbulence in organizational environments. The level of turbulence is often considered a major trigger of improvisation (Crossan 1998; Hatch 1999). Changing and unpredictable environments are fertile in unexpected and unplanned occurrences that have to be addressed as they unfold via improvisation (Emery and Trist 1965; Moorman and Miner 1998a). The need for improvisation may also arise from an unexpected mismatch between planned and actual environmental or organizational conditions, or it may have an internal origin, as an organization may be unsatisfied with its present state and create a new vision for itself. By doing this, the organization is articulating a future state of reality it wants to achieve, inducing action in its members by making explicit the distance between current reality and vision (Senge 1990). This action is partially planned (especially in business organizations), but the emergent part of these changes has been found to be considerable (Mintzberg and McHugh 1985), and explained by means of improvisation (Perry 1991; Crossan et al. 1996).

Process

The process of improvisation can be described as discovery-driven action aiming to explore unknown and unexpected opportunities or to neutralize unforeseen threats. To make such a process feasible, organizations need to avoid two reactions: inaction due to low levels of autonomy or empowerment, and routine behavior. The stimulation of improvised behaviors has been mainly related to two

elements: minimal structures, and experimental cultures. "Minimal structures" refer to the set of controls employed to accomplish the synthesis of high levels of autonomy and control (Bastien and Hostager 1988; Kamoche and Cunha 2001; Weick 1999). They are based upon a social component (the behavioral norms and communicative codes that regulate a team's activity in a given organizational context) and a technical component (the techno-structural conditions of the task execution, as well as the knowledge, skills, and abilities that members bring with them).

The relationship between social or task factors and positive improvisational outcomes has been documented both theoretically (e.g., Hedberg et al. 1976) and empirically (e.g., Brown and Duguid 1991; Brown and Eisenhardt 1997). Successful improvisations rely on a minimal structure mostly resulting from explicit and irrevocable goals and deadlines, as well as from a small set of working rules (Kamoche and Cunha 2001). Simple and flexible resources are also an important component of this structure because they facilitate improvisation and foster coordination (e.g., Thayer 1988; Ellis 1982; Weick 1993b).

Minimal structures need two elements to build the feeling of urgency necessary to trigger improvised action and to maintain a minimum level of coherence among improvisational action and organizational goals (Brown and Eisenhardt 1997), namely, milestones and experimental cultures. Milestones or action deadlines are an effective mechanism to hold the sense of urgency first triggered by an unexpected and "unplanned-for" event (Gardner and Roggoff 1990). They help to check current actions against the developing situation, allowing appropriate corrections (Brown and Eisenhardt 1997); they provide a sense of structure since they are set in advance (Eisenhardt and Tabrizi 1995); and they provide feedback as partial stages are concluded and, thus, potentially increase individual motivation.

"Experimental cultures" are those that promote action and learning by doing—as opposed to reflection and planning—as a way of understanding and dealing with reality. They tolerate errors and are ready to espouse what Weick (1995) called an "aesthetic of imperfection." These organizations accept that a high failure rate in innovation (Craig and Hart 1992) is the price to pay for success and for the learning that ensues (Crossan and Sorrenti 1997). To foster such a culture, organizations can use two major mechanisms. They can reward people based on the number of "competent mistakes" they have made—that is, those that result from novel ideas and not from flawed execution (Picken and Dess 1997). Secondly, they can tap the power of symbolic action and stories as third-order controls (Perrow 1986), by diffusing tales of "competent mistakes" as role models.

Outcomes

Organizational improvisation can have both positive and negative outcomes. The most common positive outcomes are flexibility and learning, which when occur-

ring over long periods of time, may significantly change the organization. As Gersick (1991) argued, most organizations do not change in strong and infrequent bursts—as the "punctuated equilibrium" model contends—but through small and incremental changes (see also Brown and Eisenhardt 1997; Eisenhardt and Tabrizi 1995; De Geus 1997). According to Van de Ven and Poole (1995), the punctuated equilibrium model is but a particular case of the incremental change model. We contend that improvisational activities, as modest as they might seem, can have a de facto transformational effect over the organization. Negative outcomes of improvisation include biased learning and opportunity traps. Organizations, when formalizing knowledge acquired while improvising, can generalize a solution that is inappropriate in totally different circumstances (Moorman and Miner 1998b). Hence, seemingly legitimate lessons can be inefficient and inappropriate in alternative contexts.

An organization falls into an opportunity trap when it fails to exploit the novel ideas obtained through exploration processes like improvisation. Thus, the organization may take too long to crystallize a new product concept—for example, while waiting for more and more new ideas to incorporate into the product. Ultimately, it may fail to introduce the product into the market in a timely fashion, and thus fail to reap the benefits of those ideas. In fact, in a research on the use of improvisation in new product development, Miner et al. (2001) found that this was a major concern for managers.

Role of leadership in organizational improvisation

Not much is known about the role of leadership in the process of improvisation, as well as about the type of leadership that will enhance or motivate organizational improvisation. The phenomenon of leadership in a context of organizational improvisation raised a couple of issues, as far as our choice of research method was concerned. First, although leadership is a much-studied phenomenon, it has been of little concern to those researching organizational improvisation, perhaps in part because the latter phenomenon is still in its initial stage of development (see Hatch 1997; 1998; Crossan and Sorrenti 1997). Authors investigating improvisation have yet to reach consensus on a definition, and many are still unraveling its theoretical development (Barrett 1998). As far as the field of leadership is concerned, probably for this very set of reasons, improvisation has still to attract a significant amount of attention assessing its impact upon this and other organizational topics. Thus, when looking at the intersection between these two topics, one mostly finds theoretical articles and some secondary and anecdotal evidence (e.g., Thayer 1988; Weick 1993b; Crossan et al. 1996; Crossan 1998; Barrett 1998). Hence, the lack of a theoretical basis from which to draw testable hypotheses is also a concern.

Despite the specificities of the process, leadership may be an important factor affecting the degree and effectiveness of organizational improvisation. Authors

drawing on the jazz metaphor argue that a "servant" leadership style (Greenleaf 1979) and a rotating leadership (Bastien and Hostager 1988) favor wider departures from traditional prescriptions associated with contingency theory—for example, to "be relationship-oriented in moderately favorable situations" or to "be task-oriented in very favorable or very unfavorable situations."

The rationale for the relevance of a rotating leadership is grounded in contingency leadership theory, which states that in unexpected and "unplanned for" situations a strong leader must emerge, especially when action must be hastened (Fiedler 1967). Although this seems to contradict the need for a rotating leadership, we contend that in fact it renders it more pressing. This is due to the growing complexity and interdisciplinary nature of the problems that organizations face, which calls for different competences and knowledge (Stacey 1996). Thus, when each member is called upon to contribute to the ongoing improvisation, he or she cannot merely act as a "consultant" or "counselor" but, rather, as a leader because of the coupling of a scarcity of time with a need for specialized knowledge (Weick 1993a).

A "servant" leader can have a meaningful positive impact on the quality of organizational improvisation. This kind of leader holds a twofold stewardship: stewardship for their followers, and stewardship for the purposes of the organization (Greenleaf 1979). Stewardship for followers has two advantages: (1) It attenuates the negative effects of practicing improvisation (Eisenberg 1990); and (2) it allows for more fluid transitions of "real" (as opposed to "nominal") leadership of improvisation. Stewardship for organizational objectives builds upon the "clear goals" element of the minimal structure presented above, strengthening the ability to focus on improvisational actions (Bastien and Hostager 1988; Weick 1993a).

Organizational improvisation seems to call for a specific type of leadership, one where the leader needs to be able to make a synthesis among apparently conflicting or dissonant styles, such as planning and acting behaviors, directive and permissive styles, providing guidelines, rules, and procedures, while allowing individual discretion for goal attainment. We call this style "improvisational leadership"—not to introduce a new type of leadership theory, but to characterize leadership in a specific situation. Beer and Nohria (2000) have reported the same type of demand for the synthesis of apparently contradictory elements in other leadership contexts. Hence, with improvisational leadership, we contribute to the contingency approach to leadership by noting the particular demands posed in the specific situation of improvisation. Our data highlight such an exercise of dialectical action, which can be defined as the simultaneous integration of apparently contradictory behaviors, values, and beliefs in the process of leading a group—a skill that our data suggest is central to successful improvisation.

The notion of improvisational leadership contributes to the literature by signaling that, rather than shifting from one behavior to another, leaders may sometimes have to assume both behaviors at the same time. It is our contention that it is this

need to achieve a dynamic and potentially unstable synthesis between contradictory demands that makes the exercise of improvisational leadership so difficult.

Methodology

Given our objectives, this analysis considers the role of leaders and leadership in improvisational action in actual organizational settings. We conducted an exploratory analysis based on two case studies. This approach allowed us to formulate propositions, rather than to test them, in order to generate palpable findings. Case-study research is more adequate to earlier stages of research on a given phenomenon, where the available literature does not permit researchers to generate hypotheses (Eisenhardt 1989; Strauss and Corbin 1990). Hence, the goal for our research was to find instances of leadership in improvisational contexts that would allow for some level of generalization.

Our core setting is a project team with the task of formalizing a global virtual team charged with new product development for a research-and-development consortium in the mold industry. This setting is highly prone to improvisational activity—not only because this type of activity is endemic to computer-mediated work settings (DeSanctis and Poole 1994), but also because of the tight deadlines and performance pressures that members are subjected to. Moreover, the entire mold industry is, according to the project team leader (the CEO of one of the most prominent companies in that sector), "under constant pressure to innovate and to do so at an increasingly faster rate." Additionally, the leader was highly committed to this project's success and actively participated in most of its events.

Our second setting was chosen because of its striking similarity to a jazz performance, with jazz being the dominant metaphor for the study of organizational improvisation (Cunha et al. 1999). We accompanied a group that was assigned the task of preparing a complex demonstration of a computer-mediated work-support software that, because of the latter's nature, could only be outlined in advance, but not entirely scripted. Again, tight deadlines and pressure to perform were present, mostly due to a high leader involvement, to which a large public and a short time span were added—matching the characteristics of leading a band of jazz improvisers (Gioia 1997). This second setting allowed us to assess the extent to which leadership in a context of organizational improvisation paralleled its jazz counterpart.

Design considerations

We addressed the limited amount of research in the leadership of improvisations by opting for an exploratory approach, allowing us to draw some propositions from data, with the purpose of testing them in the future (Symon and Cassell 1998). This raised a second issue, that of the generalizability of our findings. Qualitative methods are often accused of forfeiting generalization in order to ob-

tain a more accurate description of the social processes under scrutiny (Yin 1984). However, as Eisenhardt (1989) and Campbell (1975) argued, the actual difference between qualitative and quantitative methods is that the former allow theoretical sampling and replication-based generalization, based on theoretical degrees of freedom, whereas the latter rely on empirical sampling and sampling-based generalization, based on empirical degrees of freedom. A final methodological issue relates to the nature of improvisation, and the inherent difficulty of structuring and conducting an empirical study in unplanned situations. These two challenges led us to opt for an exploratory case-study approach (Yin 1993), not only because it handles the issues discussed above, but also because it allows us to look not only at the outcomes of the phenomenon of interest, but also at its process, which is important for observing how the phenomenon unfolds.

Data collection and analysis

The data came from two sources. The first was a multiple case study of the development and implementation of a computer-mediated virtual new product development team—the Round the Clock (RTC) project (its real name). The setting for this project was the international molding industry, and its goal was to take advantage of the differences in time zones between the countries where the project's partners were located in order to have a 24-hour new-product development process, with the ultimate intention of reducing conception time by a factor of three (via three eight-hour shifts). The RTC project was the idea of the CEO of Iberomoldes—a Portuguese company that is an active player in the international molding industry. The objective of this project was to reduce the time needed to develop a new mold, in order to meet the increased customer demand for speed. To this aim, RTC essentially sought to formalize a set of technological and social standards that would allow three sub-teams located in three different time zones, roughly eight hours apart from each other, to engage in sequential product development.

This meant that, at the end of a working day, the first sub-team would send the set of files on the product or mold under development to the second sub-team, whose working day would be beginning (because of its location eight time zones away). The second sub-team would follow exactly the same procedure and forward its work to the third, thus completing a 24-hour cycle. Iberomoldes's CEO recruited four partners in order to implement this project. The first was Centimfe, a research-and-development consortium for the Portuguese molding industry co-founded by Iberomoldes, whose CEO also leads that consortium. Centimfe was chosen because of its pool of talented personnel, and because of its access to European Union funds for industry-specific innovation. (RTC was funded by the European Union's EUREKA project.)

Iberotec, the wholly owned Mexican subsidiary of Iberomoldes, was also recruited because of the trust that existed between the two organizations and because of its geographical location (7 hours from Portugal). The two other

partners were GMI and DMG, a research consortium for the molding industry in the Chinese province of Dong Guang and the government body that oversees that industry, respectively. Both partners were recruited at an innovation brokerage event held in the Chinese special administrative region of Macau, because of their geographical location (nine hours from Portugal), their expertise, and the importance of this province's molding sector.

To make the data collection process clear, it is necessary to clarify that RTC's data came mostly from direct observation and interviews. We also collected extensive archival data such as e-mail messages, computer-mediated chat transcripts, reports, memos, and industry publications. Data were collected over five months in 1999 during eight field visits, for a total of forty-one observation hours, 164 pages of archival data including e-mail messages, and project publications. Additionally, three 45-minute interviews and four 2-hour meetings were conducted with several participants in the project. These interviews served to confront informants with differences between what was planned and what ended up happening. The exploration of such differences (e.g., their causes, their management, and their consequences) was also in the interview script. Informants were then selected on the basis of their knowledge of the events under analysis.

At RTC, data collection and analysis was divided into two distinct stages. In stage one (January–March 1999), visits to the field were very frequent (no more than two weeks apart, and sometimes with only a day or two in between). Apart from the procedures described under data collection, following each visit some cursory analysis was done in the form of basic open/axial coding (Strauss and Corbin 1990), generating specific questions to ask and specific phenomena to attend to in subsequent visits. At the end of this stage, a somewhat more detailed analysis was performed that included some selective coding (Strauss and Corbin 1990), leading to an interview script and a survey to be applied in the next stage. The second stage of observation at RTC, in which these surveys and interviews were performed, coincided with further cursory analyses of these data, in order to prepare for the core theory-building effort.

Our second source was Valhalla's Big Show (VBS), an event hosted by a large management software developer that was to be attended mostly by potential customers, aimed at increasing sales. VBS was the idea of the CEO of Valhalla, the Portuguese subsidiary of a multinational software developer. Each year, every subsidiary of this company hosts an event mostly aimed at potential customers, where the latest advances in the software are presented in a conference-style format. For the 1999 observation of this event in Portugal, Valhalla's CEO asked three of their employees to prepare a live demonstration of the software. This was a daunting task because of the low reliability of the Internet, which was the backbone of this performance.

At VBS, data were collected during the course of the project. The team member cooperating in the research kept a free-form diary of her actions, which went up to 63 pages. Additionally, two 45-minute semi-structured interviews were

conducted before the actual event, and another one-hour interview was conducted on the day after it occurred. Interviews were aimed at collecting information about the improvisations that unfolded during the presentation, why they developed, and how they were handled. We also secured access to the event, thus having the possibility to observe directly how it unfolded. Data from the VBS case were analyzed at two points in time: the preparations for the live performance, and the live performance itself. Some cursory analysis was carried out following the event, thus encompassing the team member's diary, two a-priori interviews, and the event observation.

Seven specific events were chosen for the purposes of our analysis of improvisational leadership. These events were selected because they shared a common characteristic—namely, the need to solve some kind of unexpected problem, which is the nature of improvisation. This selection may be questioned, but the focus on a set of relatively similar events may uncover a pattern in the leadership of improvisations. The criteria that guided our selection of events resulted from an attempt to get as much variation as possible in the extent and nature of leader behavior, and in the quantity and quality of improvisation. In order to fulfill these goals, we chose events based on computer-mediated work because, according to earlier research on the implementation and use of this type of collaborative technology (Orlikowski and Hofman 1997; Johnson and Rice 1984), these settings incorporate tensions such as the need for both democratic and autocratic leadership behavior, and for both planning-biased and action-biased leaders. This same research showed that these technologies are often implemented according to a strict plan that, nonetheless, is used mostly as a source for flexibility (an enabling structure), rather than as a source of compliance (i.e., a coercive structure). The first five events were derived from the RTC project and the last two events from the Valhalla project.

Event 1: First videoconference

This event marked the beginning of the RTC project. The groups had just been created, and no one knew the members of the other groups. There was a leader in each country team; the leader was actively present during the process, adopting a directive style, controlling the team communication process, but not making goals or deadlines explicit to team members. Since there were no prior interactions, there was still little trust among team members. This event corresponds to the "forming stage" of the team, and its members tried to formalize a technological architecture so that they could have a simultaneous videoconference with all project partners. However, the leader considered that "this first videoconference is just to make sure that technology is OK," and he was not expecting "to get much out of it as far as the project is concerned." The team members had the same type of expectations, considering it to be just a test. Several unexpected technological problems appeared, such as loss of sound, as well as an unexpected

business opportunity to design and build a mold for a large industrial client of the Chinese members of the team which, combined with the absence of prior interaction, introduced a high level of turbulence.

Event 2: Idle experimentation

This event also occurred in the early phases of work on the RTC project. Members of the three teams were still trying to formalize a technological architecture in order to get point-to-point connection among Centimfe and Iberomoldes's partners, and to formalize its settings. The actual process consisted of apparently aimless experiments performed by the group and individually, under the stated objective of testing alternative technologies. The leader was absent, and no clear goals and deadlines had been established, although he was already considering that having a reliable videoconferencing platform was not that important. This ran counter to team members' beliefs that achieving a reliable videoconferencing platform was one of the most crucial tasks of the project. A small number of minor unexpected problems occurred, such as interrupted communications, but the existence of predefined interactions and more reliable technology accounted for a low level of turbulence.

Event 3: Live demo to the minister of science

The main goal of this event was to demonstrate the new-product development (NPD) project to the minister of science, who was known for his interest in new technologies. The plan was to have an interactive computer-mediated NPD between Iberomoldes and Centimfe, but several major technological problems presented unexpected difficulties. Most of these problems were related to breakdowns in the communication protocol (i.e., peer-to-peer). The most serious instance was when the communication between Iberolmoldes and Centimfe broke down during the actual demonstration, jeopardizing it in the process, with potentially serious consequences for the project's credibility and, consequently, its funding (below, we explain how the team prevented such a possibility). The leader was a spectator during the presentation, but he had made it clear that "this demonstration can boost the funding available for the project," setting an irrevocable deadline, and creating the perception of the importance of the task among team members. Notwithstanding the moderate number of unexpected occurrences and accounting for a moderate level of turbulence, the demonstration was successfully achieved, with a few major improvisations.

Event 4: Joint product development, Centimfe-Iberomoldes

The goal was to deliver a finished product, while allowing a working structure to emerge. This was being performed between Centimfe and Iberotec as an interac-

tive computer-mediated NPD. Although there were some major technological problems and product revisions, the actual process unfolded as intended. The team secured a contract to manufacture a mold for the tube of a vacuum cleaner; and the objective was for both entities to work on the design, using the time difference between them to gain a time advantage. At one point, the CAD files became too large to transfer. Moreover, the poor quality of communication lines in Mexico made videoconferencing almost impossible. This led team members to create a set of formal documents to support the transition from one site to the other. The moderate reliability of technology and the predefined interactions created a moderate level of turbulence. Although the leader was observing the project, he established a minimal set of rules, goals, and deadlines. For the leader, this was "an important event, for it would allow the team to set the rules and working methods for future larger-scale projects." This sense of importance was also perceived by team members, who considered that "completing an actual product was needed to get [the project] going."

Event 5: Final live performance

The main objective of this event was to perform a live demonstration of virtual NPD to an audience that included the Portuguese prime minister and several other ministers. There was a script of the interactive computer-mediated NPD among all project partners. However, due to major unexpected problems, there were considerable and intentional deviations from the script. Again, these problems were mostly communication-related, and the technology was moderately reliable. International lines broke down frequently; and the most serious instance happened during a demonstration of remote collaboration, where one of the Portuguese team members was showing how he could control a Chinese member's computer. To solve this problem, they "faked" the process, using a cellular phone to tell each other what they were doing, thereby taking advantage of the lag introduced by long-distance communication lines. There was a minimal structure stemming from the task script and the swift trust among team members. The event occurred during a large innovation fair where it would greatly enhance the credibility of the project. It was therefore perceived as very important, both by the leader and the team members.

Event 6: Performance preparation, Valhalla

The goal was to conceive and prepare a script for a live demonstration of a software to facilitate computer-mediated collaborative work. The plan was to have an opening meeting, followed by individual conception and scripting, and ending with a final meeting to "put the pieces together." Actually, the second stage shifted between individual conception and group scripting. The leader was not an active presenter; but he had established a minimal set of rules and goals, plus an

irrevocable deadline. This was an important event for the leader, for whom "this has to be perfect, we will have lots of prospects watching," as well as for the team members, who were fearful, but expected a high payoff from the demonstration. Associated with the occurrence of a moderate number of unexpected problems (and therefore, moderate turbulence), new possibilities of action associated with individual roles emerged.

Event 7: Live performance, Valhalla

The goal was the performance of a software's scripted live demonstration, to facilitate computer-mediated collaborative work by following the previously prepared script. Due to some unexpected technology-related changes, improvisation on the script occurred when one team member decided to disregard the script in order to adapt his presentation to the audience. Team members and the team leader had developed high trust, which allowed for the changes to be performed swiftly.

Results

Our data revealed that there were substantial differences in the types of leadership, as well as in the quantity and the quality of improvisations among the events under analysis. Some instances saw prolific improvisational activity, which was later formalized. RTC provides several illustrations of this argument. One of the most eloquent was the improvisation of a cue (saying "over" at the end of each statement, as the people communicating via radio often do) that signaled when team members had finished what they had to say. This was a major issue because the low quality of overseas Internet-based videoconferencing often produced gaps in the flow of sound, which the team members acting as the "listener" often interpreted as the end of the statement. This caused overlapped speeches and confusion that hindered virtual collaboration. The improvisation of this cue had a considerable effect on streamlining communication and in speeding up interactions among RTC's members. Other situations were relatively sterile in this type of activity. (For example, some idle experimentation sessions carried out by RTC members were aimed at discovering an adequate videoconferencing platform, but improvisations were mostly negligible during these sessions and none was formalized; interestingly these improvisations essentially took place in the absence of the leader.) In attempting to understand these differences, we became convinced that instances of successful improvisation depended on the leader's ability to combine a minimal structure with feelings of relevance and urgency toward the challenges the group faced. Below, we identify: (1) the antecedents of the leadership situation that may lead to organizational improvisation; (2) the process; and (3) the outcomes.

Antecedents

From our data, three major antecedents of improvisational leadership emerged: (1) the environmental turbulence felt by the group; (2) the importance of the event to the leader; and (3) the ease of use of resources. Our observations showed that conditions of moderate turbulence did promote the integration of paradoxical goals where centralization and decentralization, on the one hand, and planning and action, on the other, were skillfully combined. On top of that, depending on the leader's preferred style, we found that very high or very low levels of turbulence led to a mostly directive or permissive leadership.

At RTC, in the idle testing phase (Event 2), two team members tested various solutions for the Internet-based communication problems the team was facing. No pressure to perform was observed, because this was an event with a very low level of turbulence that, because of the personal style of the leader appointed to that task, was mostly undertaken in a very permissive environment. On the contrary, the moderate level of uncertainty felt at a joint product-development project (Event 4) between Iberotec and Centimfe—there was some social certainty from previous interactions, but high task uncertainty because it was the first time this was attempted—allowed directive leadership behaviors (e.g., nonnegotiable deadlines and goals) to be merged with permissive ones (e.g., open development process). These data and the underpinning theoretical argument suggest the following proposition:

Proposition 1: Environmental turbulence has a curvilinear relationship with the presence of improvisational leadership, where very low or very high levels of turbulence reduce the likelihood of occurrence of this type of improvisational leadership.

There is little or no reference to the importance of the event (i.e., the task at hand) to the leader in either the organizational-improvisation or leadership literatures. The social-conflict literature, however, has suggested that action is seldom taken if all of the concerned parties do not deem the challenge they are facing to be personally important (Doise and Mugny 1984)—that is, as having a significant effect on their own individual outcomes. Research on leadership in turbulent contexts and on improvisation thus seems to assume that any deviation from a given norm—be it real or expected, implicit or explicit—is automatically acted upon by the leader and/or the group. This is probably due to the fact that both streams of inquiry sample events where action or improvisation took place, so that the importance of the event does not come out as a relevant variable because, essentially, it does not change. A cursory look at the research on improvisation sustains this argument. The more visible empirical studies on improvisation were all conducted in contexts that any leader or team would consider to be important (e.g., Moorman and Miner 1998b; Pearson et al. 1997).

Our research indicates that improvisational leadership emerges mostly when events are considered to be important, and when they have to be solved urgently. Less important events are often addressed via directive or permissive leadership, depending on the leader's style. With the live demonstration to the minister of science (Event 3), and when the connection between two RTC teams broke down during the final live demonstration of the project (Event 5), the team was quick to improvise a solution under a leadership that combined directive (e.g., non-negotiable goals) and permissive (e.g., no prescribed process) stances. However, when the same problem was faced in the first attempt to have all the project members communicate (Event 1), no action was taken because the same leader considered the communication failure not only unimportant, but also a welcome pause from a lengthy interaction, and thus told his subordinates not to act on it. In light of this situation, we propose the following:

Proposition 2: The more urgent and important an event is to a leader, the more likely he or she will adopt improvisational leadership behaviors.

The skills possessed by those that are led is also an important factor, determining the choice of leadership style. The contingency approach to leadership (e.g., Fiedler 1967; Hersey and Blanchard 1974) argues that the lower the subordinates' skills and abilities, the more directive the leader should be. The organizational-improvisation literature concurs with this approach and argues that, to improvise, people have to possess a high level of proficiency and knowledge (e.g., Crossan, et al. 1996). This is mostly due to the reliance on jazz improvisation as a source of insights for conceptualizing organizational improvisation.

However, the study of improvisation in other contexts, such as therapy (Kamoche, et al. 2003), and the limited empirical work done on improvisation in organizational settings, imply that its accomplishment may depend more on the ease of use of available resources than on the level of skill. As the work of Brown and Eisenhardt (1997) and that of Weick (1993a; 1993b) indicate, easy-to-use resources (e.g., simple tools or materials) waive the high-skill requirement from team members wanting to improvise and/or work in a less-directive environment.

Our data suggest that individuals using available resources can improvise under an improvisational leadership. This has to do with the *bricolage* component of organizational improvisation—that is, with the capacity to make-do with available materials, instead of trying to obtain adequate resources. At RTC (Event 5), a member with low computer literacy was able to solve an Internet communications problem by writing messages on paper and displaying them in front of a web-camera in order to perform a task set by the leader, but whose process had been left open. This might imply that, when people feel confident enough to exploit available resources creatively, improvisational leadership might be more appropriate than in situations where people are preoccupied with the adequacy of resources. Hence:

Proposition 3: Leaders foster improvisational behaviors when the use of bricolage *is possible—that is, when people feel they can solve problems with the available resources.*

Process

The elements constituting the process of exercising the leadership of improvisation that emerged from our data were: (1) a minimal social and task structure; and (2) the importance of the task to subordinates. We found that the social element of this structure resulted from the exercise of leadership. Thus, VBS's project leader sketched the types of roles to be occupied by team members in a directive, non-negotiable fashion; but he left the allocation of these roles and their actual content to team members themselves (Events 6 and 7). However, as one of the team members reported, in "normal" work contexts this same leader opted to define role contents clearly, because improvisation was less of a necessity. Task structure also resulted from the practice of this type of leadership, where the leader was called upon to provide non-negotiable goals, deadlines, and a small set of rules (Brown and Eisenhardt 1997), and to grant the group an extensive amount of autonomy in using those rules to meet the prescribed goals and deadlines. When both VBS and RTC leaders were able to integrate directive and permissive leadership behaviors and planning with action, they did so by articulating goals, deadlines and, occasionally, some working rules, and then by freeing team members to comply as they saw fit. This suggests the following proposition:

Proposition 4: The presence of improvisational leadership has a curvilinear relationship with the presence of a (social and technical) structure—that is, a low level of improvisational leadership fosters very high or very low levels of (social and technical) structure, while a high level of improvisational leadership fosters a moderate level of structure.

The task facing the team must not only be important to the leader, but also to his or her subordinates, because they are the ones who ultimately take the actions needed to handle it. Under this perspective, the practice of improvisational leadership includes embracing both deliberate and emergent action, meaning that the leader has the task of using emergent events deliberately to stir the group's course of action by shaping the meaning of those events to the group (Smircich and Stubbart 1985). Additionally, by helping the group to make sense of the task as an important one, the leader is able to add it to the coordination mechanisms of the social and task structures. If leaders fail to foster this sensemaking, and followers deem events as personally unimportant, then little action can be expected. When the subordinates we observed did not feel that a specific event would have an impact on individual outcomes (Event 1), they took little action,

no matter how important that task was for their leader. The practice of improvisational leadership, which encourages subordinates to perceive success in achieving the task objective as an important individual goal, can go a long way toward avoiding this trap.

Two striking examples of this were the first videoconference and the second live demonstration that occurred at RTC. The first videoconference (Event 1) was perceived as being very important for the project leader; but the highly directive style this leader adopted did not instill that sense of importance in his subordinates. This is consistent with previous research on change implementation (e.g., Johnson and Rice 1987; Orlikowski 1996), which shows that "telling" or "selling" change modes (where managers simply inform employees about change or attempt to persuade them of its value) are inferior to "consulting" and "co-creating" (where the change decision takes employees' opinions into account or actually emerges from them), as far as commitment to implementation goes. As a result, when major unexpected contingencies occurred, the group took little action toward solving them. The second live event had a large audience, and relied on a set of goals and rules set by RTC's CEO (Event 5). Because of the discretion subordinates had in how to accomplish these goals (so long as a set of basic rules was adhered to), these subordinates perceived that the outcome of the event would have a direct impact on their professional standing, and they went a long way to make sure that all went smoothly. In light of this, we advance the following:

Proposition 5: Under improvisational leadership, leaders are able to transfer to subordinates the perception of a task's importance.

Outcomes

There are several outcomes of the exercise of improvisational leadership; but we will focus on the relationship between its process and the occurrence of successful improvisations because of the salience of this relationship in our data. Our findings suggest that events with very low or very high social and task structures have a low incidence of improvisation and a lower rate of successful improvisation, whereas moderate amounts of these types of structure coincide with a higher proportion of successful improvisations. At RTC's first videoconference (Event 1), the lack of a social and task structure allowed only for minor improvisations, none of which were formalized. At VBS (Events 6 and 7), the goal-and-deadline structure set by the team leader fostered several formalized improvisations that were crucial for the project's outcome. The foregoing suggests:

Proposition 6: The level of social and technical structure has a curvilinear relationship with the number of successful improvisations, where very low or very high levels of such structures reduce the number of such occurrences.

The perceived importance to subordinates of a deviation from expectations or plans has an important impact on determining whether or not this deviation will be addressed via improvisation. There is little discussion of this relationship in the literature; but there are a number of instances in our observations where unexpected and unplanned occurrences did not give rise to any action from subordinates. Although these events affected the projects' outcomes, the team did not perceive that they would do so. In a live RTC demonstration (Event 5), there was a color incongruity between what was being shown on the team's computer screen and what the audience was viewing. This deviation from plans was deemed unimportant, however, and no action was taken to resolve it. In this same demonstration, two team members whose computer screens were being projected simultaneously for the audience to see lost their connection, and immediately took actions that allowed them to "fake" that connection ("faking" is a form of improvisation, where action is taken, although it is deliberately inconsequential in handling the task at hand [Hatch 1997]), and this failure went unnoticed. Drawing on the theoretical argument above and on these data, we advance:

Proposition 7: The more the task is perceived to be important to the leader, the higher the likelihood that subordinates resorting to improvisation will handle it.

Discussion and conclusions

While interest in organizational improvisation is growing, it has yet to culminate in a significant body of rigorous empirical work. Against this background, we looked at a series of improvisations performed by computer-mediated teams in order to understand how leadership is exercised in this context. Seven propositions emerged from this research relating the turbulence of the environment, the importance of the task, and the ease of use of resources to the exercise of "improvisational leadership," which refers to dynamic syntheses of apparently contradictory behaviors in the process of leading a group. These propositions also encompass its process, which is facilitated by a "minimal" social and task structure, and of the process of ascribing tasks with personal relevance to subordinates.

Taken together, these propositions constitute a model of leadership in a context of improvisation that can be subjected to further empirical analysis. Additionally, this research builds on the argument favoring a dialectical approach to organizational phenomena in general, and to leadership in particular, pointing to the curvilinearity of the relationships among some variables. Moreover, it adds empirical flesh to the argument that leading for change requires the capacity to deal with contradiction (Beer and Nohria 2000), and it highlights the role of the perceived importance of an event to trigger this type of phenomenon. Finally, our results suggest that leaders may need to learn how to embody seemingly opposite behaviors and how to ascribe importance to unexpected events in order to help their organizations to improvise more effectively.

Our propositions help improve our knowledge of the practice of leadership of improvisational behaviors. Improvisational leadership involves the capacity to exploit the pluralism inherent in organizational paradoxes (Eisenhardt 2000; Clegg, Cunha and Cunha 2002); and it plays a pivotal role in the initiation of improvised action. It has been noted, for example, that high levels of control do not preclude high levels of autonomy (see Proposition 2). Our propositions contribute to the theory of organizational improvisation in three ways. First, they articulate some major features of what leadership might look like in improvisational contexts—namely, the need to integrate apparently contradictory behaviors such as those associated with directive and participative leadership styles, which materializes in what we have called a "minimal" task and social structure, and in the framing of task as individually important. Second, it shows that there are a number of variables that affect, or result from, leadership in an improvisational context that have curvilinear relationships among them, instead of the linear relationships that have previously been advanced (e.g., Vera and Crossan 1999). Finally, we have supplied a set of testable propositions resulting from a research effort grounded in organizational reality. This allows for a much-needed expansion of the field of organizational improvisation from the jazz metaphor to the corporate reality, with a view to bringing the debate closer to empirical reasoning, while building on theoretical developments.

Contributions

In summary, this study led to the following major contributions regarding improvisational leadership, which is appropriate for this type of context and is characterized by:

1. Some degree of environmental turbulence;
2. Social construction of the event as important, by the leader;
3. Leader's ability to combine behaviors typical of both autocratic and democratic, task-oriented, and people-oriented leadership styles;
4. Leader's ability to synthesize dialectically the paradoxical needs of planning and of executing; and
5. Leader's ability to instill the sense of task importance in subordinates.

Limitations

This exploratory research allowed us to use cases to formulate propositions, but not to test them in order to generate palpable findings. Second, the fact that both sources of data (i.e., RTC and VBS) occurred in a background of advanced communication technologies (DeSanctis and Poole 1994) may have biased our findings toward this kind of setting. However, research by Ambrosini et al. (2000) has shown that computer mediation has only negligible effects on group and

leadership dynamics, so that this bias might not be all that problematic. Finally, the elements of leadership we have presented, and improvisation itself, may fall prey to the temptation of seeking universal principles and solutions, although improvisation is not an adequate response in every type of environment. Low-turbulence environments may not need the flexibility that improvisation brings. In fact, such flexibility may be harmful in the sense that it hampers achieving the efficiency to which these settings are more conducive (Lawrence and Lorsch 1967).

Suggestions for future research

The first suggestion for would be to test the propositions advanced here, especially in non-computer-mediated settings. This testing would allow one to confirm (or not) the propositions extracted from our data and, more importantly, to evaluate the strength of each of the relationships we have advanced. Another opportunity lies in the development of the ideas we presented here. Several relationships are bound to cover only a limited spectrum of this phenomenon, so that generating more testable hypotheses would help advance research on leadership in improvisational contexts. Finally, it would be worthwhile to investigate the presence of improvisational leadership outside these settings, in order to determine the generalizability of this style in other contexts.

Implications

First and foremost, the very concept of improvisational leadership offers a new way of visualizing organizational reality through a dialectical lens. For theory, this implies the possibility that what we perceive as opposites in organization theory may in fact be open to integration. For practice, this means that the debate between "traditional" and "modern" management may be illusory. The most "modern" management practices need the more "traditional" ones in order to be effective. In other words, new managerial techniques and directions need to build on, rather than dispense with, the traditional ones. Improvisation relies on autonomy, but not at the cost of control.

Related to this dialectical approach, we found that relationships the literature depicts as linear may in fact be curvilinear. For theory, this draws attention to the need to expand research, at least as far as improvisation goes, to encompass curvilinear relationships. For practice, this finding gives a new meaning to the expression "there can be too much of a good thing." Adequate syntheses of structure and planning seem to provide more flexibility than do high or low levels of these elements—an argument that goes against traditional and modern management theories that espouse one extreme or another, but one which appears to be closer to managerial reality (Weick 1993b).

A final finding emerging from this research relates to the role of the perceived

importance of the task at hand in triggering organizational action. This factor has not received much attention in either the leadership or improvisation literatures. Nevertheless, our data show that, even in the presence of all the triggers for improvisation addressed in the literature, this phenomenon may not take place, simply because its potential actors do not deem these triggers to be important.

As far as theory is concerned, this finding opens up a complementary explanation for many phenomena in both leadership and improvisation. It emphasizes the role of leaders as creators and managers of the meaning its subordinates attach to organizational facts (Smircich and Morgan 1982), by showing that this role may determine the amount of effort subordinates are willing to put into an unexpected and unplanned task. Our results indicate, therefore, that despite their inherent unpredictability, improvised behaviors may be stimulated and, to a certain degree, managed. This is not to say that improvisation can be planned, but to admit that certain organizational conditions and leadership behaviors are particularly favorable to improvised behaviors, which may or may not be effective.

Our research aimed to explore the role of leadership in this process. As a whole, our efforts sought to weave research on improvisation and leadership together in a way that allows scholars to develop these fields of inquiry, in order to augment their joint impact on managerial practice. Given the growing importance of unplanned action in the organization-theory literature, we are confident that our analyses will generate more interest in the relationship between improvisation and leadership.

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